31761 03551 2664

Best, Elsdon
The Maori division of time

GN
667
N9B43

DOMINION MUSEUM MONOGRAPH No. 4.

ROYAL ONTARIO MUSEUM OF ARCHAEOLOGY

THE MAORI DIVISION OF TIME.

BY

ELSDON BEST.

Published by the Dominion Museum, Wellington, New Zealand, under the Authority of the Hon. the Minister of Internal Affairs.

WELLINGTON:

BY AUTHORITY: W. A. G. SKINNER, GOVERNMENT PRINTER.

1922.

Price 1s.

DOMINION MUSEUM MONOGRAPH No. 4.

THE MAORI DIVISION OF TIME.

BY

ELSDON BEST.

Published by the Dominion Museum, Wellington, New Zealand, under the Authority of the Hon. the Minister of Internal Affairs.

WELLINGTON.

BY AUTHORITY: W. A. G. SKINNER, GOVERNMENT PRINTER

1922

LIBRARY
JAN 20 1967
UNIVERSITY OF TORONTO

GN
667
N9B43

THE MAORI DIVISION OF TIME, INCLUDING REFERENCES TO POLYNESIAN SYSTEMS.

CONTENTS.

The Maori year. Ancient year systems. Autumn as commencement of year. The Pleiades year. The Orion year. The Aryan year. The Babylonian year. The Egyptian year. The Celtic year. Intercalation. Moon of both sexes. Superior importance of moon among barbaric folk. Personified forms of the moon. Hina, Sina, and Rongo. Moon older than sun. Rongo-ma-Tane. Moon and reproduction. The eel and reproduction. How time was expressed. Months of Polynesian year. The ten-months year. The Pleiades and agriculture. Stars as regulators. The lunar year. Seasons regulated by flowers and migratory birds. Star-names as month-names. Names of nights of moon. Widespread knowledge of these names. Phases of moon. Certain phases favourable to fishing and planting. Moon myths. Seasons. Personifications of time-marking phenomena. Rona and the moon. Maori division of time a crude system. The guardians of the science of *tatai arorangi*. Terms employed to denote time.

THE Polynesian system of division of time was crude and incomplete. It contains, however, elements of interest, for it was probably brought from the old home-land of the race in the far west. Moreover, it possesses an evolutionary interest, for we see in the primitive time-measurement of the Maori the rude system from which our accurate one has been developed. It seems by no means improbable that the two systems sprang from a common source, and it is probable that its place of origin lay in the far-off regions of southern Asia, in India, or the ancient Land of the Two Rivers.

From whatever region the ancestors of the Maori may have wandered in long past centuries, it is clear that their knowledge of arts and sciences must have been but elementary when they settled in the isles of the Pacific. Also it is evident that such crude knowledge became fossilized in this region. Dwelling in small communities in isles of small area, cut off from communion with more advanced peoples, the Polynesians must have lived for many centuries in much the same stage of culture as they had been when they first entered the Pacific.

The Maori of New Zealand followed in the footsteps of many other divisions of mankind with regard to the commencement of the year. His year commenced at the beginning of winter, after his harvesting operations had concluded. It would appear that some change was made in the Polynesian system when immigrants from that region settled here in New Zealand, for we are told by several writers that the Polynesian year commenced in December with the evening rising of the Pleiades.

In his interesting work entitled *Neolithic Dew-ponds and Cattle-ways* A. J. Hubbard wrote as follows: "Early man naturally measured the year from the ripening of the crops of one year to the corresponding period in the succeeding year. Thanks to the investigations of Sir Norman Lockyer and Mr. Penrose, it has perhaps been established that this system of measuring time gave the early part of May as a starting-point for the year in ancient Egypt, as it had been in Chaldea in a still more remote period." Another authority, however, states that the Egyptian year commenced with the cosmic rising of Sirius, about the middle of July.

The following extract is from *Folk Lore*, vol. xxv, No. 3: "Ancient Celts and Teutons reckoned only two seasons in the year, and began it with the winter season in November, not with the summer season in May. This, obviously, is the practical husbandman's calendar, beginning the year with ploughing and ending it after harvest."

It was during the autumn or early winter that the Maori year commenced—that is, in May or June; the precise time differed. The Pleiades year of south-eastern Asia has, at some unknown period, been introduced into the Pacific, and so is met with in these far southern isles of New Zealand.

Here, however, we encounter an instance of those contradictory and disconcerting facts so frequently met with in the study of Polynesian institutions. It frequently occurs that a community has preserved two different versions of a myth, or two forms of a custom, art, or institution. Now, in some districts, as the east coast of the North Island, the Pleiades year was a permanent institution, but in others the heliacal rising of Puanga (Rigel in Orion) marked the commencement of the year. This was the case in the far North, in the South Island, and at the Chatham Isles. It is possible that the two systems were introduced by different bands of migrants, and possibly from different regions of the Pacific. It is a noteworthy fact that the Orion year was followed by tribes most closely connected with the original people of the land, and the Pleiades year by the later-coming Takitumu migrants. The natives of the Takitumu district of the east coast were noted by Cook and his companions as being of superior culture to those of the far North and those of the South Island.

We are told that the primitive Aryan folk reckoned the years as winters divided into moons and nights, not into months and days, and that they made no attempt to reconcile solar and lunar time. The ancestors of the Polynesians must have possessed a somewhat similar system of time-measurement when they entered the Pacific region in times long past away. Their mode of life in the far-scattered isles of Polynesia would not make for advancement, but still there was evidently some unexplained system of intercalation by means of which the lunar year was occasionally rectified.

The Babylonian year was one of twelve months of thirty days each, and it was regulated by intercalation at certain periods. We owe much to the ancient populations of that far-off land and their strivings after astronomical knowledge, including the twelve-

hour dials of our timepieces. Twelve was a highly favoured number in Babylonia, as it also was with Polynesians, including our Maori folk. That predilection emanated from the study of astronomy and the division of the year into twelve months. The Egyptian year was also divided into twelve months of thirty days each, to which were added five extra days set apart for a ceremonial agricultural festival. Curiously enough, this usage reappears at the Hawaiian Isles in the northern Pacific, where the five intercalated days were devoted to exactly the same purpose.

Inasmuch as the Polynesian division of time was based on the movements of the moon, it behoves us to pay some little attention to that luminary, one of the leading members of what the Maori calls the Whanau Marama, or Children of Light. In some ancient mythological systems pertaining to barbaric folk the moon is masculine, on account of its supposed superior importance, while the sun-god is feminine. This was the case among the Accadians. Among the more highly civilized Semites of a later period the sexes of these orbs, or their personified forms, were reversed. Now, in Polynesian mythology we encounter the moon in both characters, as both male and female. This may represent racial admixture in the past, a commingling of two mythological systems. In Maori folk-tales the moon is distinctly alluded to as a male, as the husband of all women; but the moon has two personified forms, one of which is female and the other male. These two personified forms are also known far and wide across Polynesia.

The female personified form of the moon in New Zealand and Polynesia is known as Hina, Sina, and Ina, in sympathy with well-known letter-changes. The Maori replaces the *s* with *h*. The name of Sina carries the mind back to Sin, the moon-god of far Babylonia. The Maori has two forms of the name: Hina-keha (Pale Hina) is applied to the moon when bright, while Hina-uri (Dark Hina) describes it during the *hinapouri* or dark nights of the moon. She also appears as Hina-te-iwaiwa and Hine-te-iwaiwa, who is the female deity presiding over childbirth, the art of weaving, and women in general. The moon-goddess of ancient Egypt occupied exactly the same position.

In the name of the 28th night of the lunar month, Orongonui, we find the name of the male personified form of the moon. In the name of the 27th night, Otane, we find that of the personification of the sun. Rongo of the Maori is known as Rongo, Rono, Ro'o, Longo, Lono, and Ono in the various groups of Polynesia. Judge Fenton has stated in his *Suggestions for a History of the Maori People* that Rono was a Babylonian name for the moon; this has not been encountered elsewhere by the present writer. We do know that in that far region the moon was the measurer of time, and its personified form the god of agriculture. This position of the moon was a far-spread usage, and it reappears in New Zealand. The superior importance of the moon is a belief of which we see survivals in Maori lore, wherein Rongo appears as the elder brother of Tane. Again, in the peculiar double title of Rongo-ma-Tane, employed both here and in Polynesia, we note that the name of the personified form of the moon precedes that of the sun. A very brief study of Maori

institutions and myths shows us that Rongo was here both the time-measurer and the patron deity of agriculture.

Rongo-nui is one of the lengthened forms of the name of the important being under discussion, and the name has been applied to a certain night of the moon, as noted above. This name should stand as O-Rongo-nui, the *O* carrying a possessive sense. It is worthy of note that the Maori husbandman planted his sweet potatoes during the Otane and Orongonui phases of the moon, thus showing that he recognized the powers of sun and moon in connection with the growth of crops. Ritual formulæ pertaining to crops were addressed principally to Rongo, and offerings of the firstfruits of such food-supplies were made to him. This identification of Rongo with the moon cost the writer many years' study, and, when concluded, I found that Fenton had arrived at the same conclusion long before. This is shown in a sentence in the above-mentioned work: "Several of the days are named after the old gods of the people, and the 27th day is called Orongonui, after an ancient name of the moon-god." Hence Fenton has the credit of solving that puzzle.

It will be noted that the lists of names of phases of the moon, as given by different persons or different tribes, do not agree. In some cases the names differ, in others the order in which they appear. In Fornander's work, *The Polynesian Race*, we find that, 4,000 miles from New Zealand, the Hawaiians call the 27th and 28th nights of the moon's age Kane and Lono (Maori Tane and Rongo), and that they are both *la kapu (ra tapu)*, or sacred days. These two names of nights, as the Maori terms them, are also found in conjunction with each other in the lists of the Chatham Isles, Tahiti, and Mangaia. Of the latter the Rev. W. Gill wrote: "The 26th and 27th were fête-days, Rongo and Tane being patrons of their dances in time of peace."

In the well-known name of Rongo-marae-roa, or Rongo of the Vast Expanse, we have another form of the name. Marae-roa, Tahua-roa, Marae-nui-atea, Mahora-nui-atea, and Tahora-nui-atea are all names denoting the vast expanse of the ocean. With that ocean Rongo is ever connected, and this appears clearly in Hawaiian myth, wherein he is alluded to as "Great Rongo dwelling on the Waters." In Old-World mythologies we again meet with this close connection between the moon and water. Note the Maori myth of Hina-uri passing over the ocean during the dark stages of the moon, after which Tane-te-waiora restores her and returns her to this world as Hine-keha, once more young and beautiful. Yet another name, that of Rongo-mai, is connected with the moon, for the being of that name ascended to the moon. In an interesting communication from Huru-moana, of Pipiriki, occurs a remark concerning the twelve lunar months termed therein *te tatau o Rongo-nui ngahuru ma rua*, the tally of twelve of great Rongo.

We have seen that in Maori myth there are two personified forms of the moon, Rongo and Hina, or Sina, the one male and the other female. At Samoa Rongo is said to have been the son of Sina. In the New Hebrides we meet with the word *sina* as meaning "to shine." In the *Journal of the Polynesian Society*, vol. 20, page 172, we are told that Sina is a Hindu name for the

moon. At the Hawaiian Isles we find an old myth that shows Rongo and Hina to be but two names for the one being. When Hina became crippled and ascended to the moon to abide therein she took the name of Lono-moku (Rongo-motu = crippled Rongo).

In Asiatic beliefs of old the moon is closely connected with reproduction, as in Polynesia and New Zealand. A lunar crescent surmounting a linga was the symbol of Ira, the eel-god of India, where the phallic eel was also nearly concerned with reproduction, as it is in Maori myth. Now, the old symbol of the moon-god, the lunar crescent, reappears here at the end of the earth in the *whakamarama* or *whakaaurei* (both moon-names), which is the crescent carved on the upper end of the old Maori *ko*, or digging-implement.

Early man ever turned to the moon for help in the matter of the division of time, inasmuch as its phases are more apparent than those of the sun. The fixing of the solar year with precision was too difficult a task for him, hence he employed various devices in order to bring the lunar year into agreement with the solar year—that is to say, with recurring seasons. The lunar month would be one of the first mediums for division of time to be recognized by uncultured man, so apparent are its limits. Many peoples have advanced so far as to recognize a year of twelve months, each of thirty days. Then came the difficulty of the odd days, which often proved to be a serious stumbling-block, and, amongst other races, we find that Polynesians made various attempts to surmount it. Some divisions appear to have kept an extra month up the divisional sleeve, to be slipped in when matters became serious. Others added five loose days to the year. It is because we encounter so many institutions, arts, beliefs, &c., in process of development in the Polynesian area that the ethnography of that region is so interesting a study. Our week of seven days is a heritage from people whose system of time-measurement resembled that of the Maori.

The first attempt made by man to employ the sun as a time-measure, beyond the very evident alternation of night and day, was apparently in the recognition of seasons, to which he assigned names. Thus season-names are older than words employed to denote the solar year, and in some cases we find that the word defining the solar year originally meant "season." The Maori word *tau*, formerly employed as denoting a season, has now come to be used as meaning a year, owing to European influence.

In the realm of myth we see that the Maori tells of the death and resurrection of the moon in the mythopoetic conception of the Waiora a Tane, but we do not encounter such fancies in connection with the sun, or its personified form Tane. This fact tends to show that the importance of the sun as a time-measurer was not fully recognized by Polynesian folk; they clung to the lunar year of early man. Both the lunar and solar years have been the progenitors as it were of a great many interesting myths.

The Maori not only lacked a precisely measured year, but also any dependable system of chronology whereby to register the fleeting years. No man knew how old he was. The only serviceable unit for the defining of long periods of time was the

human generation, and that is assuredly not a precise one. The unit was not an arbitrary one of a certain tale of years, but actual genealogies were employed, a fact that rendered precision impossible. A generation may be shortened or lengthened ; two persons descended from a common ancestor of 250 years ago may count, the one ten generations from that ancestor to himself, the other possibly but eight. This imperfect system of chronology cannot be termed a satisfactory one, but it is the only one that can be utilized in dealing with the traditional history of the Maori. In order to introduce uniformity the Polynesian Society has fixed upon twenty-five years as representing the Maori and Polynesian generation.

The Maori had some peculiar ways of defining lapses of time, some of which appear vague to us. A few quotations from traditionary stories will illustrate this : " Whatonga remained one autumn with his sons." Inasmuch as he arrived in December this would mean that he remained about five months with them. Names of the lunar months were commonly employed in fixing time, as—" The old man was lying in the porch of the house, basking in the sun of Tatau-uruora (November), the division of the year that impinges upon Akaaka-nui (December)." And, again : " It was decided that the canoe-race should be held in Tatau-uruora of the Orongonui season of the year." This season of Orongonui seems to have included summer and autumn, but we know not why it was called Rongo-nui ; possibly it was because the fruits of the earth are plentiful during that period.

A more precise way of fixing a date was by means of mentioning not only the name of the lunar month, but also that of the night or day of the moon, as in the following : " The vessel came to land at Rangitoto. Having remained at that place for some time, until the Akaaka-nui month of the season, on the Omutu night of the moon the vessel of Kahu sailed from Rangitoto." A very frequent usage was the use of ordinal numbers to designate the months, as—" In the fourth the head of the *Cordyline* was cut off." The word month was omitted but always understood.

In certain notes on Maori matters collected by Governor King of New South Wales, and published in 1796, occurs the following : " The New-Zealanders reckon time by the revolutions of the moon, and employ one hundred moons as a unit in measuring time." The latter statement is assuredly an error ; no such unit was used by the Maori. Of the word *tau*, now employed by natives to denote the solar year, Williams says in his *Maori Dictionary :* " Tau = season, year ; the recurring cycle being the predominating idea rather than the definite time-measurement." An old native of much knowledge, on being asked in what year a certain event in Maori history took place, replied : " The Maori had no tale of years as Europeans have ; their reckoning of time was by months and days, by summer and winter." The Rev. W. Gill tells us that at Mangaia the year was divided into two seasons, or *tau*. The same system obtained at Tahiti and other parts of Polynesia. Fornander states that the primary meaning of *tau* in Polynesia is " season,"—in some cases a season of six months. Occasionally it denoted, derivatively, a year. The Maori

probably used the term in a similar manner. If engaged in planting crops he would refer to the planting of the previous year as that of "last *tau*," which would be equivalent to "last year."

The Maori Year.

On the east coast the old Maori year began with the appearance of the first new moon after the heliacal rising of Matariki (the Pleiades). The first appearance of this group before sunrise was the signal for a sentimental greeting on the part of the Maori, for the ancient Pleiades year of south-east Asia was about to commence. The new-year festival was a very important one in Maori eyes.

It will be seen that the native New Year's Day was no fixed quantity. It might chance to be in June or in May. A native paper of the Napier district states that this year (1922) the old Maori year commences with the new moon on the 27th May, so that date will be the Whiro of the lunar month Pipiri. The next new moon will be on the 25th June. This year marked by the rising of the Pleiades was an institution of the east coast of the North Island. In the far North, however, also in the South Island and the Chatham Isles, the new year was marked by the cosmic rising of Rigel in Orion. This would not make much difference as to the date of the commencement of the year.

The Pleiades year was also an institution of Polynesia, with this difference—viz., that it commenced with the reappearance of that group above the horizon at sunset. This would place the New Year's Day of the Polynesian in December. The question here arises as to why the ancestors of the Maori changed the commencement of the Pleiades year after they settled in New Zealand.

We have seen that in some districts the cosmic rising of Rigel in Orion marked the beginning of the Maori year. Dr. Thomson, who sojourned in the northern part of the North Island for some years, wrote as follows in his *Story of New Zealand:* "The New Zealand year was an imperfect mode of reckoning time, as there could never have been always thirteen moons between the appearance of the Puanga star [Rigel] of one year and that of another. It is therefore obvious that the stars and the flowering of plants were the true records, otherwise winter would have soon been summer. All nations who adopt the lunar year put in an additional month every three years, but the New-Zealanders were ignorant of this arrangement."

It would appear that the above writer missed the point in his conclusions. He evidently had collected the names of thirteen lunar months, or had been informed that such existed, and yet states that the insertion of an extra month was not a Maori usage. A few natives have given a list of thirteen month-names, and this fact should be fairly good proof that the thirteenth month was occasionally utilized, otherwise why retain it in the list. Many native authorities, however, gave names of twelve months only; thus it is possible that more than one system of regulating the year was practised, as in different districts. Names of thirteen months were also collected at Tahiti. Nor do all peoples who

adopt the lunar year appear to employ an extra month. The Hawaiians, for example, had their system of twelve lunar months of thirty days each, to which were added five extra days, as already explained. This would leave very little leeway to make up, and that could be managed by manipulation of the nights of the moon, a practice that was certainly followed by our Maori folk.

The weak point of the thirty-day month appears to lie in the fact that it exceeds the period of lunar revolution, and this would soon make itself apparent, and call for remedy. The Maori gives the names of thirty nights of the moon in the great majority of cases, as also do natives of the various isles of Polynesia. It is quite possible that two systems were practised, one marked by a thirteen-month year, and the other by one of twelve months accompanied by some method of regulating that has not been explained.

It has been stated that the Maori year was one of ten months. This was apparently an error. Our best authorities, including the high-class teachings of the Takitumu tribes, give specific names for twelve months, and frequently allude to the divisions of the year as being *ngahuru ma rua* (ten and two) in number. In some districts, however, loosely applied terms seem to have been used to denote the eleventh and twelfth months, these two being deemed of little importance; the important tasks of the year concluded with the gathering of the harvest in the tenth month. In his *Account of New Zealand*, published in 1835, the Rev. Mr. Yate, who resided in the far North, wrote: "They compute time by moons, of which they count ten in the course of the year, reckoning three moons for one at the latter end of the season. The reason they give for this is that during two months between autumn and winter they have nothing to do in the way of cultivation; their time, consequently, is then occupied in comparative idleness. They are generally very correct in their time, and take their season for planting by the blossoms which appear upon some of the early shrubs." This writer adds concerning the two unnamed months: "These two months are not in their calendar; they do not reckon them, nor are they in any way accounted for."

Now, the above remarks do not describe a genuine ten-months year; they imply that twelve months were recognized, but that the last two had no specific or generally used terms applied to them. At the same time the present writer maintains that those natives had some form of name by which the two months were designated. Even in districts where each of the twelve months had a distinctive and well-known name, certain expressions, such as *ngahuru tuhoehoe*, were sometimes employed to denote the last two months of the year.

We know that in far lands the ten-months year has been known in the past, but in such cases the year was divided into ten equal, or nearly equal, parts. It was not a case of including a period of three months in the name of the tenth month, as explained by Mr. Yate. In the very early times of the City of Rome the community had a ten-months year covering 304 days, and so had much leeway to make up. In later times two more months were added.

When an uncultured folk adopted agriculture it would be found that a more careful division of time than that pertaining to savagery was necessary—that the recurring seasons must be noted more closely. In order to effect this, barbaric man has ever turned to the heavenly bodies for assistance, hence their connection with the art of agriculture. S. Baring Gould has written as follows: "The march of the sun in its annual revolution, and the phases of the moon, formed the rough distribution of time to a rude people. But those observations were incomplete and truncated, and resulted in the creation of a year of ten lunar months, of which five were summer and five were winter months. The number was increased to twelve when it was seen that certain groups of stars appeared and disappeared in fixed succession, and returned to the same situation above the horizon at the same periods." It may be added that the moon always seems to have been the first time-measurer with regard to the periods of the year and month, hence its great importance in the eyes of barbaric folk.

The tenth month of the Maori year would be represented by March, or March–April. It was often alluded to as the *ngahuru* —*i.e.*, the tenth—and this term has come to be employed in a wider sense, as denoting the autumn season. It is quite possible that in remote times the Polynesian folk had the institution of the ten-months year. In White's *Ancient History of the Maori*, vol. 3, occurs mention of a singular tradition concerning one Whare-patari, who seems to have made known the twelve-months year. He produced a staff or stave on which were twelve marks to denote the twelve months. Clearly the tradition, as preserved by Mr. White, is but a fragment; equally as clear is the fact that it is an old astronomical myth.

This Whare-patari went to visit a people named Ruaroa, who were famous for their knowledge. They asked him, "How many months are there in the year, according to your knowledge?" He then showed them the rod having the twelve marks on it. Quoth the Ruaroa folk, "We are in error. We have but ten months. Are we wrong in lifting our crops of *kumara* (sweet potato) in the eighth month?" Said Whare-patari, "You are wrong. Leave them until the tenth month. Know you not that there are two odd feathers in a bird's tail; likewise are there two odd months of the year" (*i.e.*, over and above ten). After that the crops of the Ruaroa folk were not lifted until the tenth month, when they found that the product was much superior in quality.

The above tradition, evidently much older than the Maori occupation of New Zealand, looks very much like a dim remembrance of a former ten-months year. As to the remark concerning twelve feathers in a bird's tail, the Maori maintains that there are twelve feathers in the tail of the *huia*, and twelve in the bunch of white feathers of a parson-bird, his "choker." As to the Ruaroa, or offspring of Ruaroa, can this name be connected with the name of the December solstice, *ruaroa*, as given by Fornander?

This latter writer, in *The Polynesian Race*, states that "There is evidence that the Marquesans at one time counted the year by ten lunar months, and called it Puni, a circle, a round, a revolution;

but how they managed either this or the year of thirteen months to correspond with the division by seasons, or with the sidereal year, I am not informed." Fornander traces the Polynesian year back to Asia. He also tells us that the Hawaiian year was one of twelve months of thirty days each, and that five extra days were intercalated at the end of the month called Welehu, which days were dedicated to the festival of the god Lono, the Rongo of Maori myth. Hewitt, in his *Primitive Traditional History*, mentions a three-year-cycle system that obtained in India in past times, among the Anu and other folk. This cycle had four divisions of ten months each. He claims that this institution was carried into Europe, and that a survival of it exists at Carnac, in Brittany, in the well-known ten rows of stones at that place.

In the far north of our North Island the commencement of the Rigel year was marked by a three-days festival. In the districts where the Pleiades year was followed a similar festival was held when that group appeared on the eastern horizon in the early morn, and such appearance was greeted by women with song and tears. The Rev. R. Taylor, whose book *Te Ika a Maui* contains much matter collected in the far North, wrote: "The year commences with the first new moon after the star Puanga is seen in the morning, which is in June"—or May, as he states in his little Maori-English dictionary.

Tutakangahau, of Tuhoe, clearly explained the fact that in the Matatua district the appearance of the Pleiades on the eastern horizon before sunrise was the sign awaited as a token of the new year. He made a peculiar statement that looks as though the year in that district commenced, or sometimes commenced, in the middle of a lunar month. If this was so it was a very singular procedure. He remarked that each month had thirty nights, but that the first month, Pipiri, had fifteen nights only "of its own"; its other fifteen nights formed half of the second month, Hongonoi. Hongonoi was composed of these fifteen nights and fifteen others "of its own." The third and following months were made up in a similar manner. Unfortunately, I lost the opportunity of obtaining further light on the subject, and so am still in the dark as to what the old man meant. He was a man of much knowledge, and the most trustworthy of authorities on old-time lore. The dull northern mind is to blame for my inability to explain these exasperating and elusive months.

In his *Essay on the Native Race* Colenso says: "Their year commenced with spring [?], to which, and to the proper planting season, they were guided by the rising of certain constellations, particularly of the Pleiades and of Orion; by the flowering of certain trees, especially a red-flowered creeper *(Metrosideros sp.)*; by the sprouting of ferns, principally of the *rauaruhe (Pteris esculenta)*; by the mating, moulting, and change of note of birds; by the singing of insects; and by the arrival of two migratory cuckoos." The word "spring" in the above looks like a slip of the pen; one would scarcely describe June in New Zealand as a spring month.

The Rev. W. Gill, in his *Myths and Songs from the South Pacific*, tells us that "The reappearance of the Pleiades above the horizon at sunset—*i.e.*, the beginning of a new year—was in many islands

a time of extravagant rejoicing." Again he says: "The arrival of the new year was indicated by the appearance of Matariki, or the Pleiades, on the eastern horizon just after sunset—*i.e.*, about the middle of December. Hence the idolatrous worship paid to this beautiful cluster of stars in many of the South Sea Islands. The Pleiades were worshipped at Danger Island, and at the Penrhyns down to the introduction of Christianity in 1857. In many islands extravagant joy is still manifested at the rising of this constellation out of the ocean." The expression "idolatrous worship," used above, is not a happy one, though it would probably naturally occur to a missionary. The feeling of natives towards the Pleiades and some other stars was a sentimental one connected with their ancestors; "idolatrous worship" does not meet the case. The change from the evening to the morning rising of the Pleiades, as a token of the new year, is interesting. Was that change caused by the different climatic conditions met with in New Zealand? Assuredly the Polynesian ancestors of the Maori came hither from the Society and Cook Groups.

In the third edition of *Hawaiki* the late Mr. S. Percy Smith wrote as follows: "The Polynesians date their new year from the rising of the Pleiades when it is seen as a morning star just before sunrise." Apparently this statement represents a *lapsus calami*, for both Fornander and Gill state plainly that the Polynesian year commenced with the rising of that group at sunset in December. It was in New Zealand that the year began with the cosmic rising of the Pleiades. For some unexplained reasons the natives of Mangaia Isle identified one form of their flying-kites with the Pleiades.

At page 86, vol. i, of the second edition of Ellis's *Polynesian Researches* occurs a table of Tahitian month-names that about corresponds with our own arrangement, the year beginning in December. The author says: "It is the method of computation adopted by the late Pomare and the royal family." He then goes on to say: "Another computation commenced the year at the month Apaapa, about the middle of May." In the list of month-names that he gives December is styled Te Tai, presumably for Te Tahi = The First. Ellis also tells us that the Tahitians divided the year into two seasons called "Pleiades above" and "Pleiades below." The first of these commenced when, in the evening, these stars appeared on or near the horizon. The latter commenced when, at sunset, the constellation was invisible, and continued until, at that hour, it appeared again above the horizon. If, as suggested above, there were two distinct methods of year-measurement in the eastern Pacific, then our Maori folk may have brought their system with them from those parts. Possibly the recognition of two seasons, both marked by the Pleiades, led to the two modes of commencing the year.

Fornander states that the Polynesians divided the year into seasons, months, and days. He continues: "The commencement of the seasons was regulated by the rising of Makari'i [= Makali'i = Matariki], the Pleiades, at the time of the setting of the sun." The list of months given commences with that called Matariki, which is said to have commenced about the 20th December.

There were, however, some differences of computation in the various isles of the Hawaiian Group.

Hewitt, author of *Primitive Traditional History*, believes that the Pleiades year originated in southern India, and states that it is still retained by certain peoples on the north-west coast of India. He regards it as having been one of the earliest systems of computing the dawn of the new year. In India the commencement of the Pleiades year was marked by a firstfruits festival, as it was in Polynesia and New Zealand, where it was looked upon as an important function. Some tribes of Borneo take the heliacal rising of the Pleiades as the commencement of the planting season, and in olden times the group was closely connected with agriculture in many lands.

In his work, *Ethnology*, A. H. Keane states that the primitive Aryans reckoned the years as "winters," divided into moons and nights, not months and days, and that they made no attempt to harmonize solar and lunar time. Surely they must have regulated the year of twelve lunar months in some manner, or they would soon have found themselves in parlous plight. The Polynesians and Maori folk certainly had some system of regulation, and the rising of the Pleiades was one of its most important points.

J. G. Fraser gives a chapter on "The Pleiades in Primitive Calendars" in his *Spirits of the Corn and of the Wild*. Therein he remarks that savages appear to have paid more attention to this constellation than to any other group of stars in the sky. In particular have they commonly timed the various operations of the agricultural year by observation of its heliacal rising or setting. Moreover, certain savages who do not till the earth have a strong feeling of veneration for this constellation: this has been noted in Australia and America. Some tribes of Mexico dated the commencement of their year from the heliacal setting of the Pleiades. At Bali Island, in Indonesia, the appearance of the Pleiades at sunset marks the end of the year. Throughout Indonesia and Melanesia this constellation is connected with agriculture, as it is or was in the Americas, in Africa, and in ancient Greece. And here, in our isles of the far south, the Maori looked upon the Pleiades as the providers of food for mankind; hence the secondary name of Aokai applied to the group. As the Maori made his offerings of firstfruits to these stars, how significant was his chanted appeal: "*Whangaia iho ki te mata o te tau e roa e.*"

Dr. Shortland remarks in his *Traditions and Superstitions of the New-Zealanders* that the Maori people "divide the year into moons, the first being determined by the rising of the Pleiades." Far and wide throughout Polynesia this group is known by variant forms of the Maori name, as Matari'i at Tahiti; Makali'i at the Hawaiian Isles; Mataliki at Tonga; Mata'iki at the Marquesas. In the Cook Group and at Mangareva we find the Maori form in use.

With the Moriori folk of the Chatham Islands the year began with the reappearance of Puanga (Rigel in Orion) in the morning in June. Mr. Shand hints at some faint knowledge of a twelve-years cycle that those natives seem to have retained, but it was little more than a dim memory.

Of the Tongan system of time-division the Rev. T. West wrote in *Ten Years in South Central Polynesia :* " There obtained among the Tonguese [!] a regular division of time into months and years, these divisions being marked by the recurrence of sacred seasons and public feasts, which were observed with religious ceremony, and were under the sanction of the most rigorous laws. It is also remarkable that the Tonguese have some knowledge of an intercalary month, the use or disuse of which has led to many discussions among themselves."

In Turner's *Samoa One Hundred Years Ago* we read : " The moon was the timekeeper of the year. The year was divided into twelve lunar months, and each month was known by a name in common use all over the Group. . . . Among a people who had no fixed astronomical dates intercalation was easy, and the names of the twelve moons kept uniform. . . . The sun was the usual timekeeper of the day. The night was divided into three parts—midnight, and the first and second cock-crowing." The Samoan month-names are connected with food-supplies, &c. March is called Fakaafu, the Whakaahu of the Maori.

Months of the Maori Year.

An inquiry into the question of the months of the Maori year and their names soon reveals a somewhat puzzling fact—viz., that no common system of naming months existed. Several series of names were in use, even in the North Island. Each tribe recognized proper names for the months, but also, and apparently more commonly, employed a series of names consisting partially or entirely of ordinal numbers, as Te Tahi (The First), Te Rua (The Second), and so on. The remarkable point is that the proper names of the months did not agree. Two distinct series of such names were in use on the east coast of the North Island. Of the institutions of tribes of the western coast we know little ; few cared to collect any data save that pertaining to the wretched intertribal wars.

The word *marama* denotes both the moon and the lunar month ; this is the term in common use, but an old term for month was *kaupeka*, a word meaning " branch." The twelve months were the twelve *kaupeka* or branches of the year.

In common with other tribes the Tuhoe folk commonly used the terms The First, The Second, &c., in order to designate the months, but the proper names of them are as follows :—

1. Pipiri. *Kua piri nga mea katoa i te whenua i te matao, me te tangata.* All things on earth cohere owing to the cold ; likewise man.
2. Hongonui. *Kua tino matao te tangata, me te tahutahu ahi, ka painaina.* Man is now extremely cold, and so kindles fires before which he basks.
3. Hereturi-koka. *Kua kitea te kainga a te ahi i nga turi o te tangata.* The scorching effect of fire on the knees of man is seen.
4. Mahuru. *Kua pumahana te whenua, me nga otaota, me nga rakau.* The earth has now acquired warmth, as also have herbage and trees.
5. Whiringa-nuku. *Kua tino mahana te whenua.* The earth has now become quite warm.
6. Whiringa-rangi. *Kua raumati, kua kaha te ra.* It has now become summer, and the sun has acquired strength.
7. Hakihea. *Kua noho nga manu kai roto i te kohanga.* Birds are now sitting in their nests.

8 KOHI-TATEA. *Kua makuru te kai; ka kai te tangata i nga kai hou o te tau.* Fruits have now set, and man eats of the new food products of the season.
9. HUI-TANGURU. *Kua tau te waewae o Ruhi kai te whenua.* The foot of Ruhi now rests upon the earth.
10. POUTU-TE-RANGI. *Kua hauhake te kai.* The crops are now taken up.
11. PAENGA-WHAWHA. *Kua putu nga tupu o nga kai i nga paenga o nga mara.* All haulm is now stacked at the borders of the plantations.
12. HARATUA. *Kua uru nga kai kai te rua, kua mutu nga mahi a te tangata.* Crops have now been stored in the store-pits. The tasks of man are finished.

This list was given by old Tutakangahau, of Maunga-pohatu. The name of the first month, Pipiri, is that of a star, or rather of two stars apparently close together. Pipiri is one of the tokens of the new year and of early winter. Ruhi of the ninth month is a summer star situated near Rehua (Antares), whose wife she is in popular myth. The word *ruhi*, in vernacular speech, means "enervated," "languid," and she is said to cause man and vegetation to become so; she and Rehua personify the heat of summer. Her full name of Ruhi-te-rangi is employed by some tribes as a name for the ninth month. Poutu-te-rangi is the name of the star Altair. Such are the months of the Pleiades year as known to the Tuhoe Tribe.

Adjacent to and seaward of the tribal lands of Tuhoe lie those of the Ngati-Awa Tribe of the Bay of Plenty. The following names are those of the twelve months as known to the latter tribe, supplied by Himiona Tikitu:—

1. Te Tahi o Pipiri ..	.. The First of Pipiri.
2. Te Rua o Takurua	.. The Second of Takurua.
3. Te Toru o Hereturi-koka	.. The Third of Hereturi-koka.
4. Te Wha o Mahuru	.. The Fourth of Mahuru.
5. Te Rima o Kopu ..	.. The Fifth of Kopu.
6. Whitianaunau.	
7. Hakihea.	
8. Kai-tatea.	
9. Ruhi-te-rangi.	
10. Poutu-te-rangi.	
11. Paenga-whawha.	
12. Haki-haratua.	

Herein we have a number of the Tuhoe names, while some differ from the inland list. The first is an elaboration of the Tuhoe name. The second differs; Takurua is the name of the star Sirius, also the name for "winter." No. 3 is but a lengthened form again, as also is No. 4. No. 5 differs entirely; Kopu is the planet Venus. No. 6 also differs; Whitianaunau is an unidentified island in the western Pacific. No. 7 agrees with the former list; No. 8 differs somewhat; No. 9 differs; No. 10 agrees; No. 11 agrees; while No. 12 is partially changed.

We now turn to the month-names of the Kahungunu Tribe, which are apparently those of the Takitumu immigrants.

Ko nga kaupeka enei o te tau ki ta te Maori mohio. These are the months of the year according to the knowledge of the Maori:—

1. Aonui.	7. Akaaka-nui.
2. Te Aho-tururuturu.	8. Ahuahu-mataora.
3. Te Ihomatua.	9. Te Ihonui.
4. Tapere-wai.	10. Putoki-nui-o-tau.
5 Tatau-urutahi.	11. Tikaka-muturangi.
6 Tatau-uruora.	12. Uruwhenua.

The dictation of these names was followed by the remark: "Without exception, stars were the *ariki* (controllers, heads) of these months. The year commenced with the appearance of Matariki (Pleiades) on the horizon at dawn."

In the above list not a single name agrees with any of those in the Tuhoe or Awa lists—a remarkable fact. I am not absolutely sure that Aonui was the first month; one native gave Uruwhenua as the first. In addition to these proper orthodox names for the months the popular names referred to above would also be employed.

In native myth the divisions of the year are the care of some of the supernatural beings known as *poutiriao*, guardians of all things in all realms, appointed to those duties by the Supreme One, Io of the Hidden Face.

The following is a list of popular names of the months for everyday use, as employed in the Takitumu district:—

1. Pipiri.
2. Maruaroa.
3. Te Toru .. .. The Third.
4. Te Wha .. .. The Fourth.
5. Te Rima .. .. The Fifth.
6. Te Ono .. .. The Sixth.
7. Te Whitu .. .. The Seventh.
8. Te Waru .. .. The Eighth.
9. Te Iwa .. .. The Ninth.
10. } Te Ngahuru tuhoehoe, or Poutu-te-rangi.
11. }
12. Te Matahi.

In many cases Te Matahi is given as the name of the eleventh month, which is more appropriate; it also appears in full as Ngahuru ma tahi (ten and one). Matahi kari piwai is a name for the twelfth month, the gleaning month; and Matahi o te tau is a name for the first month. There is some doubt as to the correctness of the list given at page 62 of *Te Kauwae-runga*. One such list gives the name of the twelfth month as Ngahuru whakaawhi.

Dieffenbach, who collected his data in the "forties" of last century, writes: "A year is called *tau*, and has thirteen months." He gives the list as—

1. Te Tahi .. .. .. The First.
(And so on, employing the ordinals.)
10. Te Ngahuru .. .. The Tenth.
11. Te Ngahuru hauhake kumara .. The crop-lifting Tenth.
12. Paengawhawha.
13. Te Tahi o Pipiri .. .. The First of Pipiri.

This last name is one often applied to the first month. The collector may have here been in error; he could not have been a very accomplished Maori linguist. The Awa folk of the Bay of Plenty employ the term Toruheri (or here) o Pipiri as a month-name, but some confusion exists as to which month it applied to.

In a list of month-names collected by the late Mr. S. Locke the following appear:—

March .. .. Ngahuru paepaenga nui.
April .. .. Matahi kari piwai.
May .. .. Matahi o tau.
June .. .. Maruaroa.
July .. .. Toru upokopapa.
August .. .. .. Toruwhiti.

Inset—Div. of Time.

The balance of the months are represented by the ordinals in this list. March should probably be March–April. Upokopapa is a name applied to cold winter weather. It is an error to make the months of the Maori year coincide with our own.

The names of Oipiri and Oipiriwhea probably pertain to the stars called Pipiri, a word that means "close together." These stars are said to appear about the same time as the Pleiades. At the isle of Mangaia Opipiri seems to be applied to some form of cloud.

In the following list of month-names we note some that we are already acquainted with, and two new ones :—

1. PIPIRI. *Kua pipiri te kiri o nga mea katoa, rakau, tangata, ngarara, otaota.* The skin of all things now contracts, of trees, persons, insects, herbage.
2. PAKAWERA. *Ka haere memenge nga rau o nga mea katoa i te huka.* The leaves of all things become shrivelled by frost.
3. KAUAWHI. *Ka nui te huka ; ka patua te kaha o nga mea katoa i konei.* Frost has become severe ; the strength of all things wanes.
4. MAHURU-MATAWAI. *Ka whakaniho nga mea katoa o te whenua i konei.* All things of the earth now sprout.
5. WHIRINGA-NUKU. *Kua tora te akaaka o nga mea katoa i konei.* All things now put forth fresh growth.
6. WHIRINGA-RANGI. *Ka mihi nga mea katoa i konei ki a Rangi, ki a Papa.* Now all things greet the Sky Father and Earth Mother.
7. HAKIHEA. *Ka whakarei nga hua o nga mea katoa i konei.*
8. KOHITATE. *Ka kauawhi a Papa i nga mokopuna i konei.* Now the Earth Mother embraces her grandchildren.
9. HUE-TANGURU. *Ka pakari nga kai katoa i konei.* All food products now mature.
10. POUTU-TE-RANGI. *Ka hauhake te kai i konei ; ka ruhi te tipu o nga mea katoa.* Crops are now lifted ; all growth becomes flaccid.

In this list we have but ten month-names, and a supplementary note explains the omission by stating that the other two months are negligible. At the same time the natives who employed the above list assuredly had terms to denote the other two months ; that much is certain. This is a very different thing to a ten-months year. Of the period of July we are told that "the year has now turned ; this is Whakaahu." Now, this Whakaahu is a star-name, and is used in connection with summer ; some state that it is Castor. The Rev. R. Taylor also gives the name in connection with June and July. The list given by this writer is not a clear one, but very confusing. He seems to apply the name of Te Kahui-ruamahu to April, that of Takapou-poto to August, and Takapou-tawahi to September.

The following list of month-names was collected by the late Mr. John White :—

1. Matahi a Pouaka.
2. Maruaroa.
3. Te Toru .. .. The Third.

to

9. Te Iwa .. .. The Ninth.
10. Te Ngahuru .. .. .. The Tenth.
11. Ngahuru-nui.
12. Matahi o te tau.
13. Matahi o Mahurihuri.

Here we have thirteen month-names, obtained probably from South Island sources, for Pouaka, Poaka, and Puaka appear to be South Island variants of Puanga (Rigel in Orion).

In another list collected by Mr. White the name of Te Rua o Hongongoi is applied to the second month, while Whakakumu is given as a name for the seventh month, reminding us of Taylor's Te Wakumu applied to the sixth month. In this list White gives Ngahuru-tuma for the tenth month, a name that one would naturally expect to apply to the eleventh. The eleventh month appears as Haratua or Kahui-ruamahu, and the twelfth as Tapatapa-rere or Takurua hupe nui. This latter is an expression used to denote winter.

In yet another list of Mr. White's collection the thirteen months appear; the four last names are,—

10. Te Ngahuru.
11. Te Ngahuru hauhake kai .. The crop-lifting Tenth.
12. Paengawawa.
13. Te Tahi o Pipiri.

The First of Pipiri is a peculiar name for a thirteenth month; it is usually given as a name for the first month. It is quite possible that the Maori occasionally employed a thirteenth month in order to regulate the year, and so recover lost time. An interesting note given by White is as follows: "*Ka tahia te marae i a Puanga ka puta i te ata, a tae noa ki te marama tekau ma rua, a ma rua tuma*" ("The plaza was swept when Rigel appeared in the morning, also in the twelfth month and the odd one"). This certainly looks like a thirteenth month. Williams gives Tuma as a name of the twelfth month, but this does not seem appropriate, as the word means "odd; in excess."

The name of Puwai-awatahi was applied to June by an old man of the Ngati-Kuia Tribe (*Journal of the Polynesian Society*, vol. 26, page 119).

The following appear in the Maori dictionaries of Messrs. Colenso and Williams:—

Ahikaea	.. September	.. First month of spring.
Ahimaru	.. October	.. Second month of spring.
Ahinui	.. November	.. Third month of spring.

This identifying of the months of the Maori year with ours is somewhat misleading. Williams also gives Kaiwaka as a name for the third month, Kahui-ruamahu for the twelfth, and Tahi-wehewehe as the last month of the year, presumably the twelfth. Mr. White in his budget of notes gives Whakaau [? Whakaahu] as July, Mangere as August, Rehua as the eighth month, and Matiti as March; also Iwa-iti and Iwa-nui (Little Ninth and Big Ninth) as names for February. Rehua is scarcely employed as a month-name, but as denoting summer and its heat. Taylor gives Mangere opposite August. Mr. White used some of Taylor's matter.

In a letter written by Titoko Waru to Wahanui he gave the following names to the first six months:—

1. Pipiri.
2. Whakaahu-rangi.
3. Unuunu-hewa.
4. Aroaro-a-manu.
5. Hiringa-nuku.
6. Hiringa-rangi.

Herein we see that 1, 5, and 6 agree with Tuhoe names, while 4 is a name employed in the Bay of Plenty, more as a season-

name apparently than as a month-name. It is quite probable that Hiringa is a more correct form than Whiringa.

The Maori year may be compared to that of the Sanscrit-speaking sun-worshippers of India, a year that was divided into twelve thirty-day months; it began in April–May or May–June; this system is traced to Chaldea.

To reconcile the year of twelve lunar months with the solar or sidereal year has ever been a puzzling task to barbaric man, and many schemes have been employed whereby to effect it. The year of twelve synodical months of 29½ days each would give 354 days, thus leaving eleven days to be made up—a serious deficiency. Yet if the Maori clung to his thirty-day month he would find that the commencement of his tale of thirty nights did not coincide with the new moon, hence some regulation would be necessary. We have several remarks on record that point to some such system of regulation.

According to the list given by the Rev. W. Gill, the natives of Mangaia employed thirteen month-names, though no explanation is given as to how the thirteenth month was fitted into the scheme. A few of the month-names of this list are recognizable from the Maori point of view, as Akau or Aka'au (Maori Whakaahu), and Pipiri for April–May, while Ma'u (Mahu) is probably a star-name.

Of the thirteen month-names employed by Tahitian we recognize two as Maori, Fa'aahu (Whakaahu) and Pipiri. Ellis explains that the thirteenth month was not always employed.

At Futuna or Horne Island some of the months bear star-names, and here again we recognize Fakaafu (Whakaahu) and Mataliki (The Pleiades).

The following list of Samoan month-names is given by Fornander :—

Utuva-mua (December–January).	Palolo-mua.
Utuva-muli.	Palolo-muli.
Fa'aafu (Maori Whakaahu).	Mulifa.
Lo.	Lotuanga.
Aununu.	Taumafa-mua.
Oloamanu.	Toe-taumafa.

At the far Hawaiian Isles we encounter familiar star-names in the list of months. These are Makali'i (Matariki), Ka'elo (Takero), Ka'ulua (Takurua), and Welo (Wero). The Hawaiian month-names are as follows :—

Makali'i (December–January).	Hinaiaeleele (The Hina of Maori myth).
Ka'elo.	Hilinehu.
Ka'ulua.	Hilinama.
Nana.	Ikuwa.
Welo.	Welehu.
Ikiiki.	
Kaaona.	

Fornander states that the thirteenth month of the Tahitian year was generally omitted. With a system of twelve thirty-day months that extra month would be needed about once in six years.

In his account of the Moriori folk of the Chatham Isles Mr. Shand gives the names of thirteen months, not one of which names appears in any Maori list known to me. The fact that one

bears the name of Rongo is interesting. Mr. Shand tells us that the Moriori year began with the reappearance of Puanga (Rigel) in the east early in June, then a morning star. The months are as follows :—

Kahu	June.
Rongo	July.
Tahei	August.
Keitanga	September.
Tauaropoti	October.
Wareahe	November.
Tchuhe a Takarore ..	December.
Wairehu	January. *Cf.* Hawaiian Welehu.
Moro	February.
Mihi-torekao	March.
Ta Upoko o T'Etchiao ..	April.
Tumatehaea	May.

Presumably the Orion year was taken to the Chathams by emigrants from New Zealand, and this makes it probable that this system was that of the original inhabitants of these isles.

The reappearance of the Pleiades or of Rigel as a morning star can scarcely be said to be the commencement of the Maori year; it was the *tohu* or sign of it. The year really began with the first new moon after such reappearance, hence the beginning of the year was not a fixed time, but varied considerably. Not withstanding his inferior system of measuring time, the Maori had many checks available in the reappearance of the heavenly bodies, the blossoming of trees, &c. Mr. White states that the third month was marked by the star Kerekere (not identified), the fourth by the stars Wero-i-te-ninihi and Wero-i-te-kokota, and the fifth by the star Wero-i-te-ao-marino [? marie].

The most important task of the Maori was the cultivation of food products, and the two periods during which he had to devote the most attention to that task were those of planting and crop-lifting. These were both said to be marked by stars; but unquestionably other factors would enter into the deliberations of the crop-grower, such as the aspect of the season, the flowering of trees, &c. The statements made by natives anent the different months being marked by certain stars simply mean that during those months such stars are visible in the heavens, not that their reappearance coincides with the commencement of the month. In some cases it appears that the morning and evening risings of stars were both considered, and hence we have stars mentioned as marking both winter and summer months.

The star Ruhi, already mentioned as marking the ninth month, is also known as Peke-hawani. This star and another called Whakaonge-kai are seen one on either side of Rehua (Antares), and are said to be his wives. These are prominent summer stars in Maori story. The task of Whakaonge-kai is to make food scarce, as her name signifies.

The flowering and fruiting of trees, the dying-away of annual plants, the fall of leaves of deciduous trees, &c., are utilized by the Maori in denoting time. A native who had given me the names of *kopurehe* and *kouwha* as those of the male and female *tui* added : " These names are applied to them from the flowering

of the native fuchsia to the time that the fruit of the *hinau* appears." When the Tuhoe folk burned off the bracken on a *tawaha aruhe* (place where rhizomes of that plant are dug) they did so when the *hinau* and *tawari* trees were in blossom. The main digging of these roots took place when the *mokehu* or young fronds were developed. A belief existed that if the bracken were burned off when the *rata* and *korukoru* were in flower, then the rhizomes would be of inferior quality. Certain signs of vegetation reminded natives that certain birds were in good condition, and set him looking to his snares and traps. A Tuhoe native remarked that the fourth month of the Maori year was marked by the fruiting of the *puahou*, the fifth by the flowering of the *kowhai*, the sixth by that of the *rewarewa (Knightia excelsa)*, the seventh by that of the *kahika*, and the eighth by that of the *tawhiwhi (Metrosideros florida)*. The arrival of the migratory cuckoo in spring was looked upon as a call to action in the way of planting crops. That bird is the messenger of Mahuru, the personified form of Spring, sent hither to call the Maori folk to their annual task of planting the *kumara*.

These methods of checking the lunar months were evidently introduced from Polynesia by the immigrant Maori. In Banks's account of the Tahitians he writes: "In speaking of time, either past or to come, they never use any term but moons, of which they count thirteen, and then begin again: this of itself sufficiently shows that they have some idea of the solar year, but how they manage to make their thirteen months agree with it I never could find out. That they do, however, I believe, because in mentioning the names of months they very frequently told us the fruits that would be in season in each of them." This writer states that each Tahitian month was of twenty-nine days, but Ellis puts the number at thirty.

Dr. Thomson gives us the best account of the Maori system of time-division in his *Story of New Zealand*, and also of the regulating agents employed: "Although time passes away among them like a shadow, the unrecorded year is divided into thirteen moons, and each moon is distinguished by the rising of stars, the flowering of plants, and the arrival of two migratory birds. June is the first month of the year, and it is recognized by the appearance of the Puanga star in the morning. July is marked by the stars Kopu and Tautoru and the flowering of the *karaka* tree. August is distinguished by the stars Mangere and Whakaau; September by the rising of the Oetahi star and the flowering of the *kowhai*, *rangiora*, and *kotukutuku* trees. It is in this month that *kumara* are planted. October, or the fifth month, is known by the flowering of certain plants; during this month the ground is got ready for potatoes. November is characterized by the flowering of the *rata* and *rewarewa* trees. December is known by the rising of the Rehua star, the ripening of the *karaka* berries, and in the south part of the Island by the arrival of two cuckoos. January is distinguished by the Rehua star, the appearance of the Uruao star, and the departure of the cuckoos. In February the Rehua star still shines and the Matiti star appears; it is the dry month of the year. March is known by the ripening

of the *kumara*, and in April they are dug up. May, or the twelfth month, often passes unnoticed. The thirteenth month is distinguished by the Puanga star, the harbinger of the new year."

This writer falls into the usual error of making the lunar months correspond with ours, and was certainly in error in believing that each year contained thirteen lunar months. Mangere and Oetahi are star-names of which we have no explanation; Whakaau is for Whakaahu; Tautoru, the Belt of Orion; and Kopu is Venus. The dates given above for the flowering of trees, &c., are not correct for some other parts of these Isles.

Nights of the Moon.

Where we speak of the days of the month the Maori referred to the nights of the moon. When we so employ the term day we include the whole twenty-four hours, and the Maori used the term *po* (night) in a similar manner. A native of old would not ask as to how many days a person had been in performing a journey, but would ask how many nights he had been—"*Po hia koe ki te ara?*"

Thomson states that each month was divided into twenty-nine nights, and this may have been a local system, but certainly not universal—in fact, most of the lists collected contain thirty names.

The following list of names of nights of the moon was contributed by the late Metera Ao-marere, of Otaki, who had obtained it from Mita te Tai:—

No. 1.

1. Whiro. The kohititanga; first appearance of new moon.
2. Tirea.
3. Ohoata.
4. Oue.
5. Okoro.
6. Tamatea.
7. Tamatea-ngana.
8. Tamatea-aio.
9. Tamatea-whakapau.
10. Huna.
11. Ari.
12. Hotu.
13. Mawharu.
14. Atua.
15. Ohua
16. Turu } Huanga; full moon.
17. Rakau-nui
18. Rakau-matohi.
19. Takirau.
20. Oike.
21. Korekore.
22. Korekore-turua.
23. Korekore whakapiri ki nga Tangaroa
24. Tangaroa-a-mua.
25. Tangaroa-a-roto.
26. Tangaroa-kiokio.
27. Otane.
28. Orongonui.
29. Maurea.
30. Mutu.

The Huna or 10th night of the moon is spoken of as an elusive, rejected, or omitted night-name. Apparently, for some reason, it was sometimes omitted, possibly in order to regulate matters. The reckoning of thirty days for each lunar cycle would naturally demand some such rectification occasionally. A native informant remarked that it sometimes conceals itself, and in that case the Ari night succeeds No. 9, Tamatea-whakapau. Metera made a curious statement concerning the above list, as follows: "The 15th night is an Ohua, but in certain months it is the 16th night, and sometimes it is the 17th night—that is, ere the condition of full moon is attained. If the moon does not become full until the 17th night, then the 15th, 16th, and 17th nights are all termed Ohua, and then the last three nights of the moon,

Orongonui, Maurea, and Mutu, are omitted, because a new moon has appeared."

It is a noteworthy fact that all names of nights of the moon's age are preceded by the indefinite article *he*, "a," or "an.' If you ask a native what night of the moon it is he will reply, "He Tirea" (A Tirea), or "He Otane" (An Otane), or whatever it may be.

In connection with the above list may be mentioned a peculiar circumstance. It is well known that in former times the Maori regulated his pursuits in a very singular manner. Thus he planted his *kumara* crop only on certain days of the moon, or nights as he termed them. In like manner certain fish were taken, or certain methods of fishing practised, only on certain days or nights. Now Mita, who communicated the above calendar to Metera, employed certain symbols to represent different modes of taking fish, and these symbols he marked opposite the names of the nights of the moon on his *marama taka* or calendar. Presumably this arrangement of symbols would differ as in different months; this point was not made clear. One symbol represented line fishing, another fishing by torchlight, and so on. One sign represented luckless days on which no manner of fishing would be successful; this appears opposite four nights, the Huna, Atua, Korekore, and Korekore-turua. In several cases nights have but one symbol opposite them, several have two, some have three, and one has as many as seven. These symbols number ten, one being a round dot, another a straight horizontal line, another a cross. Three are segments of a circle, in different positions; another a straight horizontal line with a short transverse stroke at one end; while another is of similar form, but the transverse stroke is at the opposite end. One is the roman letter L, and the tenth is the letter *e*.

As to the origin of this usage one can only surmise that Mita had examined a European almanac and had noted the use of symbols. An explanation of their use might have given him the idea of formulating a series pertaining to his own craft, and utilizing it in connection with the lunar month. He must have been an ingenious and adaptive person.

Names of nights of the moon differ to some extent in different districts, as also does the order in which the names occur. Quite possibly the latter peculiarity is due to forgetfulness on the part of contributors of data, for it is long since the Maori system of time-division was abandoned. In the following list, given by a member of the Tuhoe Tribe, such a difference is noted. The nights marked with an asterisk (*) are good fishing nights for taking eels and *kokopu;* the other nights are not so. The Tuhoe folk were not sea fishers, as they have no seaboard.

No. 2.

1. Whiro*	..	New moon, but not seen.
2. Tirea*	..	Feeble radiance of moon seen.
3. Hoata*	..	Moon clearly seen.
4. Oue.*		
5. Okoro	..	Fish are restless.
6. Tamatea-tutahi.		
7. Tamatea-a-ngana.		
8. Tamatea-aio.		
9. Tamatea-kai-ariki-whakapa.		

10. Ari-matanui.
11. Huna.
12. Mawharu.
13. Maure.
14. Ohua.
15. Atua.
16. Hotu.
17. Turu.
18. Rakau-nui.
19. Rakau-matohi.
20. Takirau.
21. Oika.
22. Korekore-whakatehe.
23. Korekore-piri-ki-te-Tangaroa.
24. Tangaroa-a-mua.*
25. Tangaroa-a-roto.*
26. Tangaroa-kiokio.*
27. Otane.*
28. Orongonui.*
29. Mauri.*
30. Mutuwhenua.*

The contributor of this list stated that the weather on the 8th night of the moon was accepted as betokening that for the balance of the month. In this list Ari is given as the name of the 10th night; in list No. 1 it appears as the 11th night. The latter is probably correct. The Huna and Ari nights change places in No. 2 list. Again, from the 11th to the 12th nights the names have been transposed. *Williams's Maori Dictionary* gives Atua and Hotu as being two names for the 15th night, but a good many lists contain both. Williams gives Atua-mate-o-Hotu as the full name of the night; his full list of names is given in list No. 3.

The contributor of list No. 2 stated that on the Ari night fish fly from the torch; he was alluding to the *kokopu*, a fresh-water fish. On the Huna night they are concealed *(huna)*, and difficult to take until the Oika (Oike) night. Fishing becomes good again on the second Korekore night about midnight. The Mutuwhenua is a very good night for taking *kokopu;* they sleep until sunrise. The number of Korekore nights differ in the above lists, and the Maurea night of No. 1 becomes Mauri in No. 2. Of No. 2 list Tutakangahau remarked: "These are the nights of the moon, thirty in number. The moon disappears on the Mutuwhenua night; it acquires form on the Whiro night and its radiance is seen; it is actually seen on the Tirea night, and becomes round on the Ohua night. It is big on the Atua night, and passes the full stage on the Rakau-matohi night. There are ten nights of *ahoroa* (bright moonlight), five nights of waning, and two of decrepitude."

A list given by Tikitu, of the Awa Tribe of the Bay of Plenty, differs somewhat from the Tuhoe list. Oue receives what is apparently its full name Ouenuku (Uenuku), and there are five Tamatea nights. The names of nights about the middle of the month change again. Evidently forgetfulness has been at work. What else can one expect of a usage that was abolished from two to three generations ago!

The Rev. R. Taylor gives six lists of these names in his *New Zealand and its Inhabitants*, which lists contain a number of names differing from those I have given. They were probably obtained in the Whanganui and far northern districts, and certainly many

years ago, probably not less than sixty, yet are they marked by such transpositions as are seen in the two given above.

The two lists given below are probably as correct as any obtainable as to order of names, but other names were employed for some of the nights in certain districts. The list marked No. 4 is from the Takitumu district.

No. 3. *Williams's Maori Dictionary.*	No. 4. *Takitumu.*
1. Whiro.	Same.
2. Tirea.	,,
3. Hoata.	,,
4. Oue.	,,
5. Okoro.	,,
6. Tamatea-tutahi.	,,
7. Tamatea-turua.	,,
8. Tamatea-tutoru.	,,
9. Tamatea-tuwha.	,,
10. Huna.	,,
11. Ari.	,,
12. Maure.	Mawharu.
13. Mawharu.	Atua.
14. Ohua.	Same.
15. Atua.	Oturu.
16. Oturu. Full moon.	Rakau-nui.
17. Rakau-nui.	Rakau-matohi.
18. Rakau-matohi.	Takirau.
19. Takirau.	Oike.
20. Oike.	Korekore-tutahi.
21. Korekore-tutahi.	Korekore-turua.
22. Korekore-turua.	Korekore-tutoru.
23. Korekore-piri-ki-nga-Tangaroa.	Tangaroa-a-mua.
24. Tangaroa-roto.	Same.
25. Tangaroa-kiokio.	,,
26. Tangaroa-whakapau.	Kiokio.
27. Otane.	Same.
28. Orongonui.	,,
29. Mauri.	,,
30. Mutuwhenua (also Omutu).	,,

These lists agree very fairly as to names, but in many cases they do not occupy the same position. In conjunction with the Takitumu list occurred some remarks that refer to some form of intercalation or omission with regard to the nights of the moon, but which remarks are, unfortunately, by no means clear.

A list from the far North shows thirty-one names, that of Takataka-putea succeeding Mutuwhenua. Maurea appears as the 13th, Otane as the 26th, Orongo as the 27th, Mauri as the 28th, and Omutu as the 29th, otherwise the list is much the same as No. 4 above.

The following list has been culled from the late Mr. John White's papers:—

	No. 5.
1. Whiro	.. Moon invisible.
2. Tirea	.. Moon is seen.
3. Hoata	.. Moon is seen higher up.
4. Oue.	
5. Okoro.	
6. Tamatea-kai-ariki	.. The *kapekape* wind prevails.
7. Tamatea-turua ..	.. Unfavourable weather.
8. Tamatea.	
9. Tamatea whakapau.	
10. Hune [? Huna].	

11. Ari.
12. Maure.
13. Mawharu.
14. Atua .. .. .. Moon is now round.
15. Hotu.
16. Oturu .. .. .. Moon is now filled out.
17. Rakau-nui .. .. Moon is circular.
18. Rakau-matohi.
19. Takirau.
20. Oike.
21. Korekore-tutahi.
22. Korekore-turua.
23. Korekore-piri-ki-nga-Tangaroa.
24. Tangaroa-a-mua .. The *kokopu* fish is taken.
25. Tangaroa-a-roto.
26. Kiokio.
27. Otane.
28. Orongonui.
29. Orongomauri.
30. Mutuwhenua.

In this list the Tamatea nights are apparently not correctly given. The Maure and Mawharu nights are rather liable to change places. The name Ohua, denoting the full-moon stage, is missed in the above list, and there are only two Tangaroa nights. The Mauri becomes Orongomauri. Remarks concerning winds would probably have but a local signification. A list given by Witana Papahia, of Hokianga, has nights 1, 2, 5, 6, 9, 10, 13, 17, 19, 25, 26, and 28 marked as being unlucky for fishing or crop-planting. But No. 28, the Orongonui night, was a specially favoured one for planting the *kumara*, or sweet potato ; doubtless the name represents Rongo-maraeroa of far-spread Polynesian fame. In Papahia's list Tirea becomes Tireo, Mutuwhenua appears as night No. 29, while No. 30 is Hui-te-rangiora.

A list collected by the Rev. Mr. Williams contains but twenty-nine names. It includes Aurei as apparently another name for the Hoata night ; it contains only two Korekore and two Tangaroa nights, but gives four Tamatea. On the east coast of the North Island the Tamatea are said to bring stormy weather or rough seas; sea fishing is impracticable; but in one of Mr. White's lists two of the Tamatea are said to bring calm-weather conditions. This probably means that it is a northern list. A Kahungunu list collected by the late Mr. G. H. Davies contains but twenty-nine names. It gives the 7th night as Tamatea turua a Hotu, and the 15th as Atua mate o Hotu. Hotu or Hoturoa is a name connected with the moon; the cusps of the moon are alluded to as *te mata o Hoturoa*.

A Whanganui list contains no less than thirty-three names, though how so many nights could be worked into a month one cannot imagine. It may be due to error. The 1st name is Whiti-karaua, while Oiro, presumably for Whiro, is the third. The 6th name is Mawete, the 7th Otama, the 9th Tutai, the 10th Pa, and the 14th Ono. No. 32 is Nonihape, and No. 33 is Takataka-putea, opposite which is marked "high tides," which is puzzling. Again, Tireo appears for Tirea. It will be observed that this list contains many names not encountered in the other lists given above.

In the Rev. R. Taylor's *Maori and English Dictionary* is another list, in which Nonihape appears as the 1st night, and is

marked "moon invisible." The next night is Ngaro-muia, but on the same line appears Ohowhata [? Hoata], as though it were a duplicate name. The 3rd night is Whitiki-raua, probably the correct form of Whitikaraua above. The 4th is Ohoata, which may be the original form of Hoata. The 6th night is given as Maweti, the 7th as Tutahi, the 8th as Otama, the 9th as Pa, the 19th as Oheke, and the 27th as Rongomai. These names appear for the most part in the previous list, though not applied to the same nights; some are misspelt.

Mr. White has a note to the effect that Ohomauri is a name for the moon on its first night, when it appears like a paring of a finger-nail. In vol. 20 of the *Journal of the Polynesian Society*, at page 113, is given a list of these night-names as collected from the Ngati-Whatua Tribe; it resembles that culled from *Williams's Maori Dictionary*. A Kahungunu list also closely agrees with the Williams's list, but the 26th night is given the name of Kiokio-tarawai, coming after Tangaroa-kiokio. A note connected with this list states that eleven months have each thirty nights, but that the twelfth has only twenty-nine. This may possibly be a post-European usage. Another statement is to the effect that the moon remains invisible for three nights. Presumably these would be nights Nos. 29, 30, and 1, the Mauri, Mutuwhenua, and Whiro nights. Many lists have a note to the effect that the moon is first seen on the Tirea (2nd) night. This Tirea is probably the correct form of the name, and not Tireo, as occasionally given. The root word is evidently *rea* = to grow, increase; and *ti* is used as a causative prefix, hence *tirea* = *whakarea*.

The following list from a Kahungunu source includes interesting remarks concerning the different days:—

No. 6.

1. Whiro	An unpleasant day. The new moon appears.
2. Tirea	The moon is seen very small.
3. Hoata	A pleasing day. The moon still small.
4. Ouenuku	Get to work! A good night for eel-fishing.
5. Okoro	A pleasing day in the afternoon. Good for eel-fishing at night.
6. Tamata-ngana	Unpleasant weather. The sea is rough.
7. Tamatea-kai-ariki	The weather improves.
8. Huna	Bad weather. Food products suffer.
9. Ari-roa	Favourable for eel-spearing.
10. Maure	A fine desirable day.
11. Mawharu	Crayfish are taken on this day.
12. Ohua	A good day for working.
13. Hotu	An unpleasant day; the sea is rough.
14. Atua	An abominable day.
15. Turu	Collect food products from the sea.
16. Rakau-nui	The moon is filled out. Sea products are the food.
17. Rakau-matohi	A fine day. The moon now wanes.
18. Takirau	Fine weather during the morning.
19. Oike	The afternoon is favourable.
20. Korekore-te-whiwhia	A bad day.
21. Korekore-te-rawea	A bad day.
22. Korekore-hahani	A fairly good day.
23. Tangaroa-amua	A good day for fishing.
24. Tangaroa-aroto	A good day for fishing.
25. Tangaroa-kiokio	An excellent day for fishing. A misty aspect prevails on land.

26. Otane	..	.. A good day. Eel-fishing night.
27. Orongonui	..	.. A desirable day. The *inanga* now migrate if the proper moon has arrived.
28. Mauri	..	.. The morning is fine. The moon is now darkened.
29. Omutu	..	.. A bad day.
30. Mutuwhenua	..	.. An exceedingly bad day. The moon has expired.

In the above list we note a displacement of some names. Ari appears as the 9th night, owing to the omission of two of the Tamatea nights. It is noticeable that lists of these names prepared by the same individual for different lunar months do not agree with each other, and there must be some reason for this. Evidently the remarks attached to Metera's list above have some bearing on this subject. The omission noted displaces the Ohua or full-moon name by two nights, which would appear to render the name a misnomer.

A note appended to the above list states that June is the lunar month Te Tahi o Pipiri, though there is some overlapping. Thus in this year (1922) the lunar month Te Tahi o Pipiri commences on Saturday, the 27th May, and ends on Saturday, the 24th June, according to a native almanac. The second lunar month of the Maori year will commence this year on the 25th June, which will be the Whiro night, according to the above almanac. In this first month the Pleiades, or Matariki, is said to be preceding Rigel. Matariki spends seven nights in Papawhakatangitangi, and then enters Mahutu, wherein it abides until the Tangaroa nights arrive.

A list collected by the late Mr. S. Locke contains but twenty-seven names, The authority explained that the moon was invisible for the other three nights. He begins the list with Tirea and ends with Omutu. Of the Atua night he says : " High tides now commence. The *inanga* are moving." These remarks concerning the movements of fish, however, apply only to certain months. The Korekore nights are so named because no food products of land or sea can then be obtained. The name Ohua is omitted in the above list.

A list contributed by Wi Kingi, of Okirihau, in 1849 appears in Mr. White's MS. matter. It has the peculiarity of commencing with the disappearing of the old moon. It resembles a list given by the Rev. R. Taylor, and contains names not known on the eastern side of the Island :—

No. 7.

1. Nonihape	..	The moon disappears ; sinks into the underworld.
2. Takataka-putea		The moon moves in the under world.
3. Whitikiraua	..	The moon begins to ascend from the underworld.
4. Ohoata	..	The moon is visible.
5. Ouenuku.		
6. Mawete.		
7. Tutahi.		
8. Otama.		
9. Pa	.. ..	He and his wife Haere-ahiahi are together. When the moon is seen early in the morning it is called Pa.
10. Ari.		

The rest of the names agree pretty well with east-coast lists, save that Oike becomes Ohika, Rongomai replaces Orongonui, and the 15th and 25th nights both appear as Kiokio. Only twenty-nine names are given.

In the following list, collected by the late Judge Fenton, the explanations are of interest :—

No. 8.

1. Whiro ..	The new moon appears.
2. Tirea ..	An unlucky day.
3. Hoata ..	An unlucky day. Moon plainly seen.
4. Oue	A lucky day from morn to midday.
5. Okoro ..	A lucky day from noon until evening.
6. Tamatea-ariki	An unlucky day. The sea is rough.
7. Tamatea-ananga	An unlucky day. The sea is rough.
8. Tamatea-aio ..	A calm day.
9. Tamatea-whaka-pau	A rough and windy day.
10. Huna ..	An unlucky day for obtaining food-supplies.
11. Ari-roa ..	A doubtful day ; if good, it is through the influence of the Mawharu.
12. Mawharu ..	A good day.
13. Maurea ..	If a desirable day, it is influenced by the Mawharu ; if unpleasant, the Atua has affected it.
14. Atua-whakahae-hae	An abominable day.
15. Turu ..	Full tides. The moon rises as the sun sets.
16. Rakau-nui ..	Moon appears large and of a red colour.
17. Rakau-matohi	The moon is now gapped.
18. Takirau ..	A fair morning.
19. Oika ..	Desirable in the evening, hence the saying : "*Hapara o Takirau, ahiahi o Te Oika*" ("Morning of Takirau, evening of the Oika").
20. Korekore	Unpleasant days.
21. Korekore-turua	
22. Korekore-piri ki nga Tangaroa	
23. Tangaroa-amua	A desirable day.
24. Tangaroa-aroto	An excellent day.
25. Tangaroa-kiokio	An excellent day, but misty on land.
26. Otane ..	A desirable day.
27. Orongonui ..	A desirable day. Whitebait migrate.
28. Mauri ..	A desirable day. The dark (*hinapouri*) phase of moon commences ; the moon is obscured by the sun.
29. Omutu ..	An undesirable day.
30. Mutuwhenua ..	An undesirable day.

In this list the Maure of No. 3 list becomes Maurea, and moves forward a night. The name Ohua is omitted, and the subsequent names disarranged. As in many other lists, Omutu appears as a name for the 29th night instead of the Mauri of No. 3 list. The six days, 23 to 28, of No. 8 list are said to be extremely lucky. One should be strenuous now in procuring food-supplies by sea and land. Here the Native informant remarked : "*Po ngahuru ma rima mai i te kohititanga ka Turu te marama. Po ngahuru ma rima mai i te Turutanga ka Mutuwhenua, ara ka pau te marama i te ra ; ka kawhakina e te ra ki roto ki te hinapouri, a ka mahuetia e te ra, ka kohiti mai ano.*" ("There are fifteen nights from the appearance of the moon to

its Turu [full] phase. There are fifteen nights from the Turu phase to that of the Mutuwhenua, when the moon is overcome by the sun. It is carried away by the sun into darkness, and, when abandoned by the sun, it again appears.)"

In a list contributed by a Tuhoe tribesman nights Nos. 1, 7, 8, 9, 10, 13, 15, 21, and 22 are marked as unlucky. Nos. 2, 6, 11, 14, 20, and 23 are said to be average nights (days included), neither particularly good nor bad. All the rest are favourable for the obtaining of food-supplies, &c., and lucky days. Night 26 is Tangaroa-kiokio ; all other names are well known to us.

In a list collected by Sir George Grey appear some new forms of names. Tirea appears as Tireo ; the third Tamatea night is Tamatea-whakapa, then come :—

9. Ohuahua-po.
10. Ohuahua-ao.
11. Ariari-po.
12. Ariari-ao.

Herein Ohua has moved five nights down the list, and has assumed a reduplicate form ; also it covers two nights. Ari also has become a reduplicate, and includes two nights. This list closes with the Omutu night, and a note runs as follows : "Each day had its own special name, even until the disappearance of the moon. There are certain meanings in this list of names concerning the taking of fish, the fruits of the earth, and the slaying of enemies." The Orongonui is omitted in this list, and the last name is Omutu. Williams gives Omutu and Mutuwhenua as being both names for the 30th night, yet in some lists we find Omutu given as the 29th night, and Mutuwhenua as the 30th.

We have now scanned a number of lists of these night-names, and, as in the case of the month-names, have noted certain discrepancies. Now, there were evidently differences as to these names in different districts. Again, inasmuch as this mode of recording time has long been abandoned, it is highly probable that correct sequence, &c., had been forgotten by some of the native contributors of data. We know this much : that the Maori had fixed the lunar month in the same manner that many nations of antiquity had instituted, or perchance they had brought it from far hidden lands in the remote past.

Natives have informed us that the Oue, Ari, and Orongonui phases of the moon (the 4th, 11th, and 28th nights) were the favourable times for the planting of the sweet-potato crop. The Korekore nights and those pertaining to the full or rounded phases of the moon were unfavourable.

It has been shown that the New Year's Day of the Maori was not a fixed date, but that it differed to a considerable extent because it was marked by the first new moon after the Pleiades were first seen above the eastern horizon in the very early morn. Here another question arises : All communities would not so see the Pleiades at the same period ; if a group rose just prior to dawn it would be seen by those having a low eastern horizon, but not by the residents of a deep valley. So that the Maori might well have become out of his reckoning, and so be compelled to adopt preventive measures.

Moriori Nights of the Moon.

A glance at the following list shows us that the Moriori natives of the Chatham Isles employed a series of names well known in New Zealand. These names were probably carried thither from New Zealand. This list, given by Mr. Shand, contains thirty-one names, and he thought that Omutu and Owhiro might represent the same night, but this does not seem probable. He remarks that the moon becomes visible on the Otere [Tirea] night.

No. 9.

1. Omutu.
2. Owhiro.
3. Otere.
4. Ohewhata.
5. Oua.
6. Okoro.
7. Tamate-tutahi.
8. Tamate-turua.
9. Tamate-nui
10. Tamate-hokopa.
11. Ohuna.
12. Howaru.
13. Hua
14. Mawharu.
15. Outua [?]
16. Ohotu.
17. Maure.
18. Oturu.
19. Rakau-nui.
20. Rakau-motohe.
21. Takirau.
22. Oika.
23. Korekore-tutahi.
24. Korekore-turua.
25. Korekore-hokopau.
26. Tangaro-amua.
27. Tangaro-aroto.
28. Tangaro-kikio.
29. Otane.
30. Orongonui.
31. Orongomori.

Comparing this series with list No. 3 we find that the above list is essentially a Maori one, though some names have become somewhat abraded, and others altered in various ways. As in a former case, the list commences with a name of a dark night, Omutu (the word *mutu* means "ended"). Whiro receives the prefix *O*, and Tirea assumes the form of Otere. The Moriori tongue was in a curiously decadent condition, and showed some very peculiar features. Hoata acquires the remarkable form of Ohewhata, and the final vowel of Oue changes. Tamatea and Tangaroa lose their final vowels. Ari is replaced by the new form Howaru, while Outua may be an error; possibly it should be Oatua, the *a* to *u* change being unusual. Hokopau equals Maori *whakapau*, and Orongomori is evidently Orongomauri.

The dark nights of the moon are called *hinapouri* (dark *hina*) by Moriori and Maori. *Hina* and *mahina* both denote the moon. *Hinapouri* and *Hinauri* are synonymous terms. A list of these Moriori names given by Captain Mair in vol. 37 of the *Transactions of the New Zealand Institute* differs from the above, there being a marked displacement of names in it.

Mangaian Nights of the Moon.

In the Rev. W. Gill's *Myths and Songs from the South Pacific* we find a list of names of the nights of the lunar month as employed by the natives of Mangaia, in the Cook Group. At a glance one recognizes the Maori names it contains, only three of them being unknown to us. Dialectic peculiarities ensure slight changes; the *h* and *wh* of Maori are unknown, but *v* is used.

Nos. 3, 4, and 15 are the new forms; they appear to replace Oue, Okoro, and Maure. The Mangaia list follows:—

No. 10.

1. Iro. Maori Whiro.
2. Oata. Maori Hoata.
3. Amiama.
4. Amiama-akaoti (whakaoti).
5. Tamatea.
6. Tamatea-akaoti.
7. Korekore.
8. Korekore-akaoti.
9. Ovari. *Cf.* Maori Ari.
10. Una. Maori Huna.
11. Ma'aru. Maori Mawharu.
12. Ua. Maori Hua.
13. Atua.
14. Otu. Maori Hotu.
15. Marangi.
16. Oturu.
17. Rakau.
18. Rakau-roto.
19. Rakau-akaoti.
20. Korekore.
21. Korekore-roto.
22. Korekore-akaoti.
23. Tangaroa.
24. Tangaroa-roto.
25. Tangaroa-akaoti.
26. Otane.
27. Rongonui.
28. Mauri.
29. Omutu.
30. Otire, Otireo, or Otire-o-Avaiki.

A certain amount of displacement is noticed in the above list, and the two series of Korekore nights is a new feature. The Rev. W. Gill writes: "At Rarotonga the 13th is Maitu instead of Atua; otherwise this account of the changes of the moon is equally good for Rarotonga. Allowing for the difference of dialects it is the same in the Tahitian Islands." In his *Jottings from the Pacific* he remarks: "Polynesians invariably counted by nights, not by days. The reason assigned for this practice is that one day is like another, whereas each night gives a different phase of the moon, with a distinct name. . . . Something perhaps may be put down to their habit, when voyaging, of steering by the stars." To put it briefly, they measured time by the moon because its changes are so apparent, as other peoples of a similar culture stage did.

In the above list Ari, the 11th night of the moon in most Maori lists, appears as Ovari. The O is merely a prefix. It is a curious and interesting fact that in these two words, *Ari* and *vari*, we have two rice-names of Oriental lands. The Maori planted his crops during the Ari phase of the moon. The Maori equivalent for Ceres is Pani, who produced crops in water; and *pandi*, *padi*, and *pari* are grain-names connected with the *vari* of Polynesia and the *ari* of New Zealand.

Tahitian Nights of the Moon.

Here we again encounter the Maori names, showing that they were introduced hither from Polynesia during past centuries. A few only differ; the great majority are easily recognized by bearing in mind that the Tahitian dialect has lost the *k* and *ng* that it formerly possessed.

No. 11.

1. Hiro-hiti.
2. Hoata.
3. Hamiami-mua.
4. Hamiami-roto.
5. Hamiami-muri.
6. Oreore-mua. 'Ore'ore = Korekore.
7. Oreore-muri.
8. Tamatea.
9. Huna.
10. Ari.
11. Maharu.
12. Hua.
13. Maitu.

14. Hotu.
15. Mara'i.
16. Turutea.
17. Ra'au-mua.
18. Ra'au-roto.
19. Ra'au-muri.
20. 'Ore'ore-mua.
21. 'Ore'ore-roto.
22. 'Ore'ore-muri.
23. Ta'aroa-mua. Ta'aroa = Tangaroa.
24. Ta'aroa-roto.
25. Ta'aroa-muri.
26. Tane.
27. Ro'onui. Ro'o = Rongo.
28. Ro'omaori.
29. Mutu.
30. Terieo.

Here we have the Cook Island forms in Nos. 3, 4, and 5, as also the two series of Korekore names and the Rarotongan Maitu. The Mangaian Marangi appears as Mara'i in sympathy with dialectic change. The name of Turu appears in a lengthened form. The qualifying terms attached to the Rakau, Korekore, and Tangaroa nights differ from those of Maori lists. Tane and Rongo lack the prefixed O, while No. 28 is evidently a form of the Orongomauri of New Zealand (see list No. 5), which again appears in most Maori lists as Mauri. The final name of Terieo seems to have strayed far from our local Tirea and Tireo.

Hawaiian Nights of the Moon.

Here again, far north of the Equator, thirteen hundred rolling leagues away from Aotearoa, we encounter our Maori list of names. In this case the letter-changes are a more serious matter, for the Hawaiians first discarded the letter *k*, and then, with charming inconsistence, transformed the *t* into *k*. This results in a somewhat uncouth dialect. We also note that *r* has become *l*. The following is the Hawaiian list :—

	No. 12.
1. Hilo	Hiro. Whiro.
2 Hoaka	Hoata.
3. Kukahi	Tutahi.
4. Kulua	Turua.
5. Kukolu	Tutoru.
6. Kupau	*Cf.* whakapau and akaoti.
7. Ole-kukahi	Kore-tutahi.
8. Ole-kulua	Kore-turua.
9. Ole-kukolu	Kore-tutoru.
10. Ole-kupau.	
11. Huna.	
12. Mohalu	Moharu. Mawharu.
13. Hua.	
14. Akua	Atua.
15. Hoku	Hotu.
16. Mahealani.	
17. Kulu	Turu.
18. La'au-kukahi	Rakau-tutahi.
19. La'au-kulua	Rakau-turua.
20. La'au-pau	Rakau-pau. *Cf.* whakapau.
21. Ole-kukahi.	
22. Ole-kulua.	
23. Ole-pau.	
24. Ka'aloa-kukahi	Tangaroa-tutahi.
25. Ka'aloa-kulua	Tangaroa-turua.
26. Ka'alōa-pau	Tangarōa-pau.
27. Kane	Tane.
28. Lono	Rongo.
29. Mauli	Mauri.
30. Muku	Mutu.

Herein we find, as in the Tahitian and Cook Islands lists, three Rakau nights against two in Maori lists, also the two series of Korekore nights. The three to four Tamatea nights of the Maori are represented by two in the Cook Islands list, and one at Tahiti; at Hawaii they disappear. It is quite possible that nights 3 to 6, inclusive, of the Hawaiian list are, properly speaking, Tamatea nights, of which only the terminal qualifying expressions remain. These latter, as meaning first, second, &c., have assuredly formed a secondary part of the name in past times, so that the only new term here is No. 16, Mahealani.

In Fornander's list of these names there are marked four series of *tapu* nights (days), each composed of two nights; these are Nos. 2 and 3, 12 and 13, 23 and 24, and 27 and 28. The last two are the names, Tane and Rongo, of two of the most important of Polynesian gods. These *tapu* days were quite apart from the five intercalary days added to the lunar month Welehu.

Marquesan Nights of the Moon.

In this list, as given by Fornander, we at length find a number of strange names, but at least ten of them are Maori forms. The lack of the letter *r* in the Marquesan dialect is a well-known letter-change; others are given in *Tregear's Dictionary*. The following names in the Marquesan list are easily recognized:—

No. 13.

3.	Hoaka	.. Hoata.
6.	Ko'eko'e-kahi ..	.. Korekore-tahi.
7.	Ko'eko'e-waena ..	.. Korekore-waenga.
9.	Huna.	
10.	A'i	.. Ari.
12.	Meha'u ..	.. Meharu. Mawharu.
13.	Hua.	
14.	Akua	.. Atua.
17.	Ku'u	.. Turu.
28.	Kane	.. Tane.

The 29th and 30th nights are Ona-nui and Ona-mate in the Marquesan list. Tregear states that Ona represents Rongo, though one would expect to meet it in the form of Ono.

Mangareva Nights of the Moon.

Of the thirty names in the Mangareva list we can safely say that nineteen are Maori. Nos. 1 to 4 are non-Maori, but evidently allied to the two Maheama nights (4 and 5) of the Marquesan list. They bear but a faint resemblance to the Amiama names of the Mangaia list, but occupy the same position. Nos. 23 to 26 are new forms, and the prefixed O is a common feature.

No. 14.

1.	Maema-tai ..	.. Tai = tahi.
2.	Maema-rua.	
3.	Maema-toru.	
4.	Maema-riro.	
5.	Korekore-tai.	
6.	Korekore-rua.	
7.	Korekore-toru.	

8. Korekore-kaha.			
9. Oari	..	Ari.	
10. Ohama.			
11. Omahara.			
12. Ohua.			
13. Oetua	..	Atua.	
14. Ohotu	..	Hotu.	
15. Omaure ..	..	Maure.	
16. Oturu.			
17. Orakau.			
18. Omotohi ..	..	Matohi.	Rakau-matohi.
19. Korekore-tai.			
20. Korekore-rua.			
21. Korekore-toru.			
22. Korekore-riro.			
23. Vehi-tai.			
24. Vehi-rua.			
25. Vehi-toru.			
26. Vehi-riro.			
27. Otane.			
28. Omouri ..	...	Mauri.	
29. Ohoata.			
30. Tunui.			

In this list we encounter yet again the two series of Korekore nights of similar names—surely a confusing arrangement. In the 17th and 18th names we have two mutilated forms as compared with Maori Rakau-nui and Rakau-matohi. This is apparently the Matohi alluded to at page 169 of the *Whare wananga*. The name Oari is the local Ari; in full, Ari-matanui. Curiously enough, the word or expression *arimatanui* means "wise" in the Mangarevan dialect.

Further data is lacking but desirable, and probably I have missed some that is on record somewhere.

We now see that the names of the nights of the lunar month, as employed by the Maori of New Zealand, are known far and wide across Polynesia, and that, of all the lists given, that of the Marquesas group contains the most names not found in our local list.

The term *aurei* is applied to the moon when crescent-shaped. The new moon is occasionally called *kohiti*, a word used to denote the appearance of the new moon. *Hua* and *huanga* are employed to denote fullness of that orb; Ohua is the night of the full moon. *Tohi* describes the waning of the moon; *tipihori* has a similar meaning. *Ata marama* is moonlight. *Mahina*, a far-spread Polynesian term for the moon, is met with in Maori songs. *Atarau* is another name applied to the moon and moonlight; another expression, *ahoroa*, has already been referred to. The expression *marama i whanake* denotes the waxing moon, *marama hua* the full moon.

Williams's Maori Dictionary gives Ariki-matanui as a name for the 10th night of the moon; it closely resembles that of Ari-matanui, applied to the 11th night; the latter also appears as Ari-roa and Ari-mataroa. There is some unexplained meaning attached to this name.

The Rev. R. Taylor remarked in his *Maori and English Dictionary* that there appears to have been a kind of division of the nights into decades. We have obtained no proof of this;

possibly there existed some local usage of that nature. Such a usage would eventually resolve itself into a month of three weeks.

A writer in the little Maori paper called *Te Toa Takitini*, of the 1st May, 1922, shows that the new year commences with the new moon on the 27th May, 1922, which is the Whiro night of the month of Pipiri. He also gives four names that seem to represent four phases of the moon during the lunar month; each has seven nights pertaining to it. These four names are Maukahau, Tara-rau-atea, Papa-whakatangitangi, and Titore-mahutu. We have no particulars of this institution.

The Maori relied on the heavenly bodies with regard to the passing of the hours of darkness. The Milky Way is his principal harbinger of dawn; according to its position he knew the approach of day. When day and night were first separated the sun was appointed to control the day, while the night was assigned to the moon, to Te Ikaroa (the Milky Way), and their younger relatives, the *ra ririki*, or little suns, the stars that gleam on high when Hine-aotea has departed.

The cry of the *pakura* or swamp-hen is said to have marked the passing hours of night; it is said to utter its cry three times during the night. The writer is not aware as to whether this statement is accurate or not, or whether any regularity pertains to such cries; it seems somewhat doubtful. The little *riroriro* bird is said to have called the Maori to work in the third month in connection with preparing the ground for crops. In like manner Mahuru, the personified form of spring, is said to have sent the cuckoo to tell the Maori folk that the planting season had arrived.

The third month was styled Hupe-nui, Upoko-papa, Toru-kai-tangata, and Tahutahu-ahi on account of the cold weather then experienced. Otoru and Toruhere o Pipiri are also applied to it in the Bay of Plenty district. Aroaro-a-manu is a name for the fourth month; Waru-patote was applied to the eighth month, and Te Iwa-kai-paeke to the ninth.

The following expressions were used to denote various periods of the day and night, but Nos. 1, 3, and 6 are often replaced by other forms:—

1. Te ra ka huru .. .. .. The sunrise.
2. Te ata .. .. .. The morning.
3. Te ra ka tikaka .. .. .. Period of heat of sun.
4. Te ahiahi .. .. The evening.
5. Te po .. .. .. The night.
6. Te turuapo .. .. Midnight.

The term *ahiahi* is also used to denote afternoon, the later part of the same; it is personified in Hine-ahiahi, the Evening Maid. Hine-titama is the Dawn Maid, a creature of peerless charms. Hine-ata is the Morning Maid, and Hine-aotea the Day or Daylight Maid.

The expression *tu a ahiahi* denotes early evening; *nehe*, *nehera*, and *whakapata* denote olden times, also *neha*. *Ra* and *rangi* both denote a day. Time was expressed by the position of the sun, thus "*ka tauhinga te ra*" is a phrase denoting the

declining of the sun. "*Kia tauhinga rawa te ra*" implies an advanced stage of such declining. "*Kia rewa te ra ki runga*" denotes that the sun is high up. *Poutu* and *poutumaro* mean "on the meridian." "*Ka moe tonu te tangata ao noa te ra, whanake noa te ra i te rua, moiri noa ki runga, poutumaro tonu e moe ana*" ("The person slept until day dawned, until the sun rose, until it was high up, and when it was on the meridian he still slept"). *Kua to te ra*" and "*Kua torengi te ra*" both mean "the sun has set"; but, precisely speaking, the latter seems to denote that the sun has quite disappeared, but the former is often used when it is still visible above the horizon. "*Kua tao te ra*" denotes that the sun has passed the meridian, but has not declined to any marked extent.

Puaotanga	Dawn.
Puao	To dawn.
Takiri	To dawn.
Takiritanga o te ata ..	Dawn.
Haeata	To dawn.
Putanga mai o te ra ..	Appearance of the sun ; sunrise.
Hapai	To dawn ; to rise.

"*Ka hapai mai nga toko o te ata ka whakatika matau*" ("As the rays of morning appeared we started"). "*Ka hapai nga Kawai-nga o te ata*" ("The harbingers of dawn rose"). Many such expressions as the following are also encountered: "*Kia puta mai nga wana o te ra i nga huapae maunga*" ("When the rays of the sun appeared from behind the ranges"). "*Te tahanga o te ra*" denotes afternoon, from *taha* "to pass; to go by."

Names of Seasons and Miscellaneous Notes.

To the Maori there are two main divisions of the year, winter and summer, *takurua* and *raumati*. There was also the usual division of the year into four seasons, as follows:—

Winter	Takurua. Hotoke.
Spring	Koanga. Mahuru.
Summer	Raumati.
Autumn	Ngahuru.

Takurua is a star-name, apparently pertaining to Sirius. Hotoke carries the sense of cold. In the following remark the name of Pipiwai is not known to the writer: "*Na, i te wa o te hotoke, o te takurua o Pipiwai*" ("Now, in the time of winter, the winter of Pipiwai"). It is just possible that the name is connected with Pipiri, a star-name that is employed to denote the cold season. As a name for spring Mahuru is not often used, but it is also the title of the personified form of spring. The term *Koanga* simply denotes the digging season, from *ko*, the old native digging-implement, also *ko*, the verb "to dig." Spring is the digging and planting season. Another expression is Aroaro-mahana, which implies the welcome warmth of spring. Waru-tuhoehoe, Waru-tumahoehoe, Waru-puahaaha, and Te Waru i kanga i a Tahu are all terms applied to the eighth month, the warm, dry period of February and March. The last of these expressions probably refers to the scarcity of food products, of

which Tahu is the personified form. The words *tuhoehoe*, *tumahoehoe*, and *tumarohoehoe* mean "high, vertical," of the sun. It is not clear to the writer why the term should be applied to autumn, as in Ngahuru tuhoehoe.

The word *ngahuru* means "ten," hence it is employed to denote the tenth month, and is also used in the wider sense of "autumn." The Ngahuru is the crop-lifting season, when food was plentiful, hence it was called the Ngahuru-kai-paenga, Ngahuru-kai-paeke, and Ngahuru-tikotiko-iere. *Whaturua* and *takurua-waipu* are terms for midwinter. Matahi o Rongo is a name applied to autumn, or perhaps early winter, the eleventh month. An old saying of the Awa folk is, "When Poutu-te-rangi is seen it is the *ngahuru ma tahi*" ("When Altair is seen it is the eleventh month").

The season-names of Orongonui and Maruaroa are decidedly puzzling. The last of these appears in various recitals as a name for the second month of the Maori year, in others as denoting the third month. Mr. S. Percy Smith noted the Maruaroa as the winter solstice; Hamiora Pio gave it as the second month, and stated that the sun changes in that month. "*Te Maruaroa, ko te marama tuarua, ka taka te ra.*" So that it should presumably be June–July. But apparently there are two Maruaroa seasons or periods, one pertaining to winter, the other to summer. In one of the recitals of Moihi, given in 1865, he remarks: "During the Matahi o te tau [first month of the year] the sun moves at the time of the Maruaroa to the head of the ancestor [*i.e.*, the heavens]. On arriving at his shoulders he turns and retires to the other extremity. Now, that is the Maruaroa of the winter. The Maruaroa at the shoulders [*i.e.*, when the sun is high in the heavens] is called the Maruaroa of the Orongonui. These are the tokens of winter and summer." Evidently the name is applied to a summer and winter period when the sun changes its course; thus the two Maruaroa denote the solstices. A line in an old song runs, "*Te ra roa o te Maruaroa o te Orongonui*" ("The long days of the Maruaroa of the Orongonui"). Herein the term Orongonui clearly applies to summer.

A member of the Awa Tribe of the Bay of Plenty stated that Maruaroa is the latter part of June, when the sun turns (*te takanga o te ra*). In ten nights the sun seeks his other wife, Hine-raumati, the Summer Maid, whose task is the fostering of the food products of the land. This is the winter solstice. Mr. White gives two brief notes concerning the expression; one is, "*Te Maruaroa, ko Poaka ka kitea*" ("During the Maruaroa Rigel is seen"). The other is, "*Ko Aotahi te upoko o nga whetu; hei te Maruaroa te kite ai i te ata*" ("Canopus is the principal star; it is seen in the morning during the Maruaroa").

As to the Orongonui season, we have several distinct statements in old recitals that it represents summer, and yet we meet with some contradictory evidence. Perchance there were two Orongonui periods also. In an old recital we note the following: "*Ko taua manu he koekoea, te manu tena o te Matahi o te tau o te Orongonui; ko te Orongonui he raumati*" ("That bird was a cuckoo.

and that is the bird of the *Matahi o te tau* of the Orongonui ; the Orongonui is summer "). Herein, apparently, the phrase *matahi o te tau* does not bear its usual signification of the first month of the Maori year, for that comes in winter. Presumably it should read : That is the bird of the first (month) of the Orongonui season. The cuckoo arrives here in spring. In the myth of Mataora the month of Tatau-uruora [? November–December] is said to be one of the months of the Orongonui season. The same statement appears in the legend of the wanderings of Whatonga —" *Ka kiia hei a Tatau-uruora o te Orongonui o te tau.*"

In the following extract from an old recital we encounter a puzzling remark : " *Ko te koekoea, ko te wharauroa, he mea tuku hei whakaatu i te matahi o te tau i te Orongonui o te ngahuru tuhoehoe* " (" The long-tailed and shining cuckoos are despatched in order to call attention to the first (month) of the season, the Orongonui of the autumn "). The expression *ngahuru tuhoehoe* is applied to the latter part of the Maori year, the last two months, or the tenth and eleventh months, before which time both cuckoos have left these Islands. In the above sentence it must be the spring that is referred to, because the cuckoos arrive here at that time, but I cannot understand the allusion to autumn. The wording of the sentence might lead one to surmise that it had been composed in some far northern isle, but yet the Orongonui is connected with autumn. In yet another old recital we find the sentence, " Hine-rau-wharangi was born in the Aonui (month) of the Orongonui." Now, Aonui is late autumn, and here again Orongonui is associated with the autumn. Again, in an old myth we are told that Te Ikaroa (personified form of the Milky Way) and two other beings were appointed as guardians of the Orongonui and Takurua seasons, to keep them separate, and so avoid confusion, lest one of them should become continuous. So that it would appear that the name of Orongonui was applied to a prolonged season, from September to about May.

Summer and winter are personified in two beings named Hine-raumati, the Summer Maid, and Hine-takurua, the Winter Maid. These damsels are said to have been the daughters of one Tangaroa-akiukiu, and both of them were taken to wife by Te Ra, the sun. The Winter Maid dwells out on the ocean and controls the food-supplies of that region, the innumerable tribes of fish represented by Tangaroa. The Summer Maid dwells on land, her task being to foster the food products of the earth. Ra, the sun, spends half a year with each of his two wives. At the time of the *takanga o te ra*, or changing of the sun of the Maruaroa (that is, the winter solstice), Ra commences to return from the ocean toward the land, there to dwell with Hine-raumati.

In certain myths the moon is alluded to as being of the male sex, and he also had, or has, two wives, Rona and Tangaroa-a-roto ; the former is " the woman in the moon." The moon is ever connected with water, hence, perhaps, the association of the name of Tangaroa, an ocean being, with the moon. We have seen that several nights of the moon are named Tangaroa, while Tangaroa and Rona are said to be the " tide-controllers,"

hence their secondary names of Whakamau-tai. When Hina-uri (the darkened moon) crossed the ocean to a far land she was taken to wife by Tinirau, son of Tangaroa.

A quaint old myth shows how Raumati (summer) mated with Raro, the lower world, their offspring being Puanga, Takurua, and Matariki (Rigel, Sirius, and the Pleiades).

Not only did certain stars mark the seasons, they were also believed to control them and to foretell the coming conditions of seasons. Hence, by noting the appearance of stars the Maori believed that he could foresee good and bad seasons. Ruaumoko of the underworld is said to bring about the change in the seasons, often marking such change with an earthquake. As one old sage remarked concerning the latter phenomenon: "It is the Earth Mother shaking her breasts, and a sign of the change of seasons." Fine calm summer weather is termed the Paki o Ruhi. When Raumati (summer) issues her commands to Rehua (Antares) he appears in hazy form, and heats and dries up the earth and vegetation, and renders man languid. Then man is heard to say, "*Kua tau a Rehua kai raro*" ("Rehua has alighted"), also "*Kua tahu a Rehua*" ("Rehua has kindled"). Rehua also directs the migration of whitebait, while Whanui (Vega) tells the Maori folk when to lift their crops.

Another old myth tells us that Day and Night begat Whakaahu and Oipiri (Pipiri), summer and winter, who were born in the vast realm of Watea (space). Both were females, and both were taken to wife by Rehua.

The following terms applied to seasons have been collected in divers quarters:—

Tau kai	A good season, bounteous and fruitful.
Tau horahora ..	
Tau ruru ..	
Tau wheunu ..	
Tau hua ..	
Tau hawere ..	
Tau tukuroa ..	A lean, cold, or backward season.
Tau kutao ..	
Tau hiroki ..	
Tau makato ..	
Tau waiika ..	
Tau wehe ..	
Tau maro ..	

When a native was giving me a number of these season-names he commenced with the remark: "*Ko nga ingoa o nga tau*," &c.—the names of the seasons. Here he clearly employed the term *tau* as denoting a season, not a year, thus following the old Polynesian usage. The *Paumotu Vocabulary* gives the meaning of *tau* as "a period."

The word "Matiti," apparently a star-name, seems to have been employed to denote summer, much as Rehua and Whakaahu were. Whakaahu is probably Castor or Pollux. Williams states that "Five subdivisions of the season were indicated by the addition of certain terms: *Matiti-tau; Matiti-hana; Matiti-kaiwai; Matiti-kai-paenga; Matiti-ruwai.*

Matiti-tau commences some time in November, and Matiti-ruwai ends in April. In the narrative of Bligh's voyage to the

Pacific we are told that the Tahitian division of time was by moons, but that they likewise divided the year into six parts, each of which was distinguished by the name of the kind of bread-fruit then in season.

We have now scanned the Maori system of the division of time as far as it is known to us. Inasmuch as the year commenced with the appearance of the first new moon after the Pleiades or Rigel was first seen above the eastern horizon just before daylight, then it follows that the New Year's Day of the Maori was no fixed quantity; it had not the precision of our own. Moreover, the hints concerning intercalation or rearrangement, and the use of a thirteenth lunar month, show that the Maori endeavoured to make his year of twelve lunar months agree with the solar or sidereal year. These were the difficulties encountered by barbaric man in his endeavours to mark the passage of time. The Maori possessed a number of checks on his incomplete system, and should he stray too far he could insert a supplementary month to put him back on the right road. The differences noted in month and night names may perhaps be accounted for by isolation, or comparative isolation, of tribes for a long period of time. In this connection we must also consider the question of the various parties of immigrants having come from different regions.

The Maori relied on regularly recurring phenomena, &c., as the tides, the morning song of birds, and so on, in order to indicate specific time, hence such remarks as the following: "*Kaore ano kia ko te manu ka haere matau*" ("Ere the birds began to sing we departed").

From some far land lost amid the shades of the setting sun the Maori brought hither the Pleiades year and his crude reckoning of time by the lunar month. He brought also the knowledge of Ra, and Sina, and Rongo, and Ira, and the Whanau Marama, the Shining Ones who gleam across the realm of Watea when Whiro sends darkness to cover the body of the old Earth Mother. He invoked the aid of those beings in his perilous journey down the path of life, for he believed them to be wondrous powers, to be potent gods in themselves. To Tane, the ruddy sun, he ascribed the origin of mankind; to Rongo he looked for aid in the art of the husbandman; to the little suns he directed invocations concerning the fruits of the earth. To all of these, moreover, he turned when endeavouring to regulate his system of time-division. He had not evolved any true chronological system; he was still groping his age-long way on the dim path of progress when our forbears appeared from the great ocean and arrested his march.

Never again will the Maori scan the heavens to note the appearance of the revered Pleiades; nevermore will his womenfolk greet the lordly stars with dance, and song, and tears. The appearance of Vega is no longer looked for in the chill hour of dawn; never again, from hamlet to hamlet, will resound the ringing cry, "*Ko Whanui E! Ko Whanui!*"

In the days of the gods the celestial beings Uru-te-ngangana, Roiho, and Roake abode at Poutiriao in order to control the "branches" of the year. It was there that the science of *tatai*

arorangi was born. They controlled time, and to them we owe the unceasing regularity of the movements of the Shining Ones on high. And even as his women turned ever to Pale Hina in their hour of trouble, so did the Maori rely on Rongo of the great waters and Tane of the heavens to measure out the fleeting year.

TERMS EMPLOYED TO DENOTE TIME.

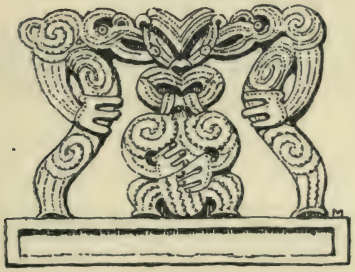
Ahiahi	Evening. Later part of afternoon.
Ahiahi pouri	Dusk.
Ahiahitanga	Evening.
Aiahi	Evening.
Aianei	Now. To-day. Presently. The present time.
Akengokengo	To-morrow.
Akuanei	Presently. To-day.
Akuara	A little while.
Amua	The time to come.
Amuri	Time to come. Amuri ake nei = hereafter.
Anaianei	Henceforward.
Anamata	Hereafter.
Ano	Up to the time spoken of; still; yet; again; and when.
Ao	Daytime, as opposed to night. To dawn. Ao ake = aonga ake = the following day.
Aoake nui	Two days off.
Aoake nui atu	Three days off.
Aoakewake	Several days off.
Aoatea	Daybreak. *Cf.* Awatea.
Aoinaake	Next day; to-morrow.
A ko ake nei	At a future time. Hereafter.
Auinake or Auinaake	Next day; to-morrow.
Aouru	Dawn.
Apopo	To-morrow. 2. At some future time.
Ata	Morning.
Ata hapara	Time of dawn.
Ata pongipongi	Time of dawn.
Atahira	Day after to-morrow. See Inatahira.
Awake	Two days hence. See Aoake.
Awakewake	Four days hence.
Awatea	Broad daylight. Middle of day. Tino awatea = Midday.
Awe	Soon. Syn. Wawe. See Meake.
Haeata	Dawn.
Hapai	Dawn, morning. 2. To rise, as heavenly bodies.
Hea. Whea	What time? As in a hea, a whea, of future time; inahea, inawhea, nonahea, of past time. Nahea = long, in time. 2. What time, of past time. Syn. Nawhea.
Houanga, Houange	An interval of time, definite or indefinite. I houanga, no houanga = a year ago. A houanga = a year hence. See Tauhounga Tauhouanga.
Huakanga	Dawn. Huaki = to dawn.
Huka	Long in time.
I mua	See Mua.
Inaianei	Just now; to-day.
Inaia noa nei, Inaia tata nei, Inaia tata ake nei, Inaia ake nei, Inaia iho nei	Very lately.
Inake	Not long since. The other day.
Inakuanei	Just now.
Inakuara	A little while ago.
Inamata	Formerly. 2. Immediately.

Inanahi	Yesterday.
Inangeto	In a short time.
Inaoake, Inawake	Two days ago.
Inaoakenui	Three days ago.
Inaoakewake, Inawakewake	Several days ago.
Inapo	Last night.
Inatahira	The day before yesterday.
Inawhai	Not long since.
Iramata	Formerly. See Inamata.
Kakarauri	Dusk.
Karcha	Two days off. 1. Day before yesterday. 2. Day after to-morrow.
Kengo	Night.
Mahina	To dawn. Hence ata mahina = dawn, early morn, though also used to denote moonlight.
Maruahiahi	Evening.
Maruao	Day, daylight, dawn.
Maruata	Dawn, break of day.
Maruawatea	Broad daylight.
Maruke	Evening.
Marupo	Night. Syn. Maruapo.
Mea ake, Meake	Soon.
Mea kau ake	Very soon.
Mo ake tonu atu	Henceforth for ever.
Moata	Early in the morning.
Mohoa	To the present time.
Moroki noa nei	Quite up to the present time.
Mua	Former time; the past. I mua = formerly. O mua = of former times. *Cf.* No mua. 2. The future, as in a mua = henceforth.
Muri	After, of time, as in the forms i muri, o muri, no muri, muri iho, muringa iho, &c.
Nanahi	Yesterday. As in inanahi (i nanahi), nonanahi, onanahi.
Naianei	See Inaianei.
Namata	Olden times, as in inamata, onamata, nonamata. 2. Future time, as in anamata = hereafter.
Nonahea, Nonawhea	Interrogative, of past time. When; from what time.
Nonaiakenei (no naia ake nei)	Intensive form of nonaianei.
Nonaianei	Of past time. Just now; to-day.
Nonakuanei, Nonakuara	A little while ago.
Nonanahi	Yesterday. See Nanahi, Rainahi.
Nonaoake	The day before yesterday. See Inaoake.
Nonaiakenui	Three days ago. See Inaoakenui.
Nonapo	Last night.
Nonatahira	The day before yesterday. See Inatahira. Atahira.
Onaianei	Of the present time.
Onamata (o namata)	Of or from ancient times.
Onanahi (o nanahi)	Of or from yesterday.
Po	Night. 2. Season. Ponga = nightfall.
Powhenua	Midnight.
Puaotanga	Dawn.
Ra	Day. Tenei ra = this day.
Rainahi (ra i nanahi)	Yesterday.
Rainaoake (ra inaoake)	The day but one before yesterday.
Raitahira (ra i tahi ra)	Day before yesterday.
Rangi	Day; period of time.
Rangi rere rua	Twilight.
Rangi weherua	Midnight. See Weherua.
Raurangi	Another time, past or future.

Roa .. .. .. Long, of time, as in he roa te wa = a long time.
Taikareha .. .. The day before yesterday. Syn. Raitariha.
Tainahi .. .. } Yesterday.
Tainanahi .. .. }
Tainakareha .. .. Day before yesterday.
Tainaoake .. .. Day before yesterday.
Tainawhea .. .. Interrogative, past time. What time?
Taitariha .. .. Day before yesterday.
Takiwa .. .. Time; period.
Takurua-waipu .. .. Midwinter.
Tau .. .. .. Season; year. 2. Period of time; interval.
Tauhouanga .. .. } Last year. See Houanga.
Tauhounga .. .. }
Taumano .. .. For a long time.
Tuaorangi .. .. Distant time, past or future.

Tuauki-po .. ..) Midnight.
Turua po .. ..)
Turuawaenga po ..) Midnight.
Turuawaenganui po)
Turuawai po ..) Midnight.
Turuawe po .. ..)

Wa .. .. Time; season.
Waenganui po ..) Midnight.
Waipo .. ..)
Weherua .. ..)
Weherua po ..) Midnight.
Whaturua .. Midwinter.



The above figure and the one on the title page represent what is usually termed the "double manaia," a well-known device in Maori carving. Manaia is the name given by natives to the grotesque bird-headed creature shown above. It often appears singly; when the double form is employed, then one is situated on either side of an equally grotesque human figure. The positions are peculiar; each manaia has its beak applied to an ear of the central figure, and the design suggests some symbolical signification. In Melanesia the same design, less conventionalized, is met with, and a similar one is reported to have been seen carved on temples in Java, though in this case corroboration would be welcomed. In India we hear of the two *garudas* or bird-like figures flanking the figure of Vishnu. These represent the spirits of Good and Evil, both of whom are endeavouring to influence Vishnu. With the Scandinavian god Odin two ravens are also frequently associated.

It is worthy of note that the so-called "hands" of these manaia are termed *haohao*, or claws, by the Maori. The three fingers that appear on the hands of old carved representations of the human figure in Maori work is a usage so ancient that its origin is lost. The peculiarity is seen in old Babylonian sculptures, in early Scandinavian art, and had been noted in the art-work of many far-sundered lands.

By Authority: W. A. G. Skinner, Government Printer, Wellington.—1922.
[2,000/9/21—13567

PUBLICATIONS

OF THE

NEW ZEALAND BOARD OF SCIENCE AND ART.

Bulletin No. 1.—NEW ZEALAND BROWN COALS, with Special Reference to their Use in Gas-producers. By H. Rand, M.A., B.Sc., and W. O. R. GILLING, M.A., B.Sc., National Research Scholars, Education Department.

PRICE, 2s. Postage 2d.

Bulletin No. 2.—HISTORY OF THE PORTOBELLO MARINE FISH-HATCHERY. By the Hon. Geo. M. Thomson, M.L.C., F.L.S., F.N.Z.Inst. Illustrated.

PRICE, 7s. 6d. Paper cover. Postage extra (inland, 4½d.; abroad, 3d.).

PRESS OPINIONS.

One of the most comprehensive efforts in local observation and original research yet published.—*Otago Daily Times*, Dunedin.

A work of exceeding interest.—*Evening Star*, Dunedin.

Manual No. 1.—NEW ZEALAND PLANTS AND THEIR STORY. By L. Cockayne, Ph.D., F.L.S., F.R.S., F.N.Z.Inst. Second edition, rewritten and enlarged. Illustrated with 99 photographs and 14 text-figures.

PRICES: Cloth, 7s. 6d.; paper, 5s. Postage extra (inland, 8d.; abroad, 5d.).

PRESS OPINIONS.

The second edition is virtually a new book. No one is so well qualified to describe New Zealand plant ecology as Dr. Cockayne.—*Nature*, London.

The story which Dr. Cockayne has to tell is wonderful, and the manner of his telling is full of charm. He gives no bare catalogue of plants nor bald descriptions, but shows by pen and picture the wonderful vegetation of those happy islands.—*Gardeners' Chronicle*, London.

The book will be treasured by all who find refreshment away from the cities and petty affairs of men. Dr. Cockayne's style is as brilliant as it is simple. He cannot be misunderstood. "New Zealand Plants and their Story" is a book to give to one's dearest friend, while keeping a copy for one's own reading and pleasure.—*Evening Post*, Wellington, New Zealand.

Manual No. 2.—WILD LIFE IN NEW ZEALAND. Part I: Mammalia. By the Hon. Geo. M. Thomson, M.L.C., F.L.S., F.N.Z.Inst. Illustrated.

PRICES: Cloth, 5s.; paper, 3s. Postage extra (inland, 3d; abroad, 2d.).

PRESS OPINIONS.

The Hon. G. M. Thomson in writing this manual has evidently taken up a labour of love. He writes not so much for the scientific as for the general reader. It is a valuable and likely to be one of the most popular works issued by the Board of Science and Art. It is a notable addition to Mr. Thomson's other works.—*Evening Post*, Wellington, N.Z.

A bright little book. Mr. Thomson has provided a book sufficiently scientific to be authoritative, and yet informal and simple enough to be interesting to the young and uneducated. We shall look forward eagerly to Part II.—*Herald*, Timaru, N.Z.

It is a book of unusual interest. There is nothing like it in print, and the wonder is that it has not been done before. Mr. Thomson is to be thanked for producing a work so useful and so timely. Technical terms and scientific language have been avoided as far as possible, with the result that we have a narrative as interesting as any romance. It will prove a valuable and useful book.—*Evening Star*, Dunedin, N.Z.

Manual No. 3.—GEOMORPHOLOGY OF NEW ZEALAND. Part I: Systematic. By Professor C. A. Cotton, D.Sc., F.N.Z.Inst., F.G.S. Over 450 pages; with 442 illustrations in line and half-tone.

PRICES: Cloth bound, 22s. 6d.; paper cover, 18s. Postage extra.

Now in the Press.

Manual No. 4.—THE MAORI AS HE WAS. By Elsdon Best, F.N.Z.Inst. A brief account of Maori life, his customs, arts, institutions, and beliefs, in pre-European days; with numerous illustrations. In preparation.

THE NEW ZEALAND JOURNAL OF SCIENCE AND TECHNOLOGY. Vols. I, II, III, and IV, 6s. per vol. Postage per vol.: Inland, 8d.; abroad, 6d. Vol. V now appearing. Six issues per annum.

ANNUAL SUBSCRIPTION, 10s.; single copies, 2s. Post free.

Specimen copy sent on application.

Order through your bookseller or from

THE DIRECTOR, DOMINION MUSEUM, WELLINGTON

All orders should be accompanied by remittance. To country cheques add exchange (6d.).

DOMINION MUSEUM PUBLICATIONS.

Bulletin No. 1.—Out of print.

Bulletin No. 2.—FISHING AND SEA-FOODS OF THE ANCIENT MAORI. Mythological and historical tales; notes on matters connected with the art of fishing as practised in former times. By A. Hamilton. 1908. 73 pp., 79 half-tone illustrations.

Price, 10s. 6d., post free.

Bulletins Nos. 3 and 4.—Out of print.

Bulletin No. 5.—MAORI STOREHOUSES AND KINDRED STRUCTURES: Houses, Platforms, Racks, and Pits used for storing Food, &c. By Elsdon Best. 1916. 108 pp., 46 illustrations.

Price, 10s. 6d., post free.

Bulletin No. 6.—THE PA MAORI. An account of the fortified villages of the Maori in pre-European and modern times, illustrating methods of village defence by means of scarps, ramparts, fosses, and stockades. With numerous plans and half-tone illustrations. By Elsdon Best.

To be published shortly.

Bulletin No. 7.—THE MAORI CANOE. A description of various types of canoes as employed by the Maori; with notes on Polynesian vessels. With illustrations. By Elsdon Best.

Awaiting publication.

Bulletin No. 8.—GAMES, EXERCISES, AND PASTIMES OF THE MAORI FOLK, with Notes on their Songs and Musical Instruments. With illustrations. By Elsdon Best.

Awaiting publication.

Bulletin No. 9.—THE MAORI SYSTEM OF AGRICULTURE: its Methods, Implements, and Ritual. With illustrations. By Elsdon Best.

Awaiting publication.

Bulletin No. 10.—MAORI MYTHOLOGY AND RELIGION. An account of the cosmogony, anthropogeny, mythology, religious beliefs, and practices of our Native folk. By Elsdon Best.

In preparation.

DOMINION MUSEUM MONOGRAPHS.

A New and Interesting Series.

No. 1.—Some Aspects of Maori Myth and Religion. 1s., post free.

No. 2.—Spiritual and Mental Concepts of the Maori. 1s., post free.

No. 3.—Astronomical Knowledge of the Maori. 1s. 6d., post free.

No. 4.—Maori Division of Time. 1s., post free.

The above have been written by Mr. Elsdon Best, F.N.Z.Inst., the well-known authority.

Order through your bookseller or from

THE DIRECTOR, DOMINION MUSEUM, WELLINGTON.

All orders should be accompanied by remittance. To countries abroad add exchange (6d.).

GN
667
N9B43

Best, Elsdon
The Maori division of time

PLEASE DO NOT REMOVE
CARDS OR SLIPS FROM THIS POCKET

UNIVERSITY OF TORONTO LIBRARY